Five-Year Review Report

Second Five-Year Review Report
for
Roto-Finish Co. Inc. Site
Portage, Michigan
Kalamazoo County

June 2007

PREPARED BY:

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Date: 5-1-07

Five-Year Review Report

Tables

Attachments

List of Acronyms

ARAR	**Applicable or Relevant and Appropriate Requirement**
CD	**Consent Decree**
CERCLA	**Comprehensive Environmental Response, Compensation, and Liability Act**
CFR	**Code of Federal Regulations**
CMW	**Core Monitoring Well**
DCA	**Dichloroethane**
DCE	**Dichloroethene**
EE/CA	**Engineering Evaluation and Cost Analysis**
EPA	**United States Environmental Protection Agency**
EW	**Extraction Well**
ICs	**Institutional Controls**
ITW	**Illinois Tool Works, Inc.**
KCHCSD	**Kalamazoo County Health and Community Services Department**
MACTEC	**MACTEC Engineering and Consulting, Inc.**
MCL	**Maximum Contaminant Level**
MDEQ	**Michigan Department of Environmental Quality**
MW	**Monitoring Well**
NCP	**National Contingency Plan**
NPL	**National Priorities List**
NTCRA	**Non-Time Critical Removal Action**
O & M	**Operation and Maintenance**
PCOR	**Preliminary Closeout Report**
PRP	**Potentially Responsible Party**
RA	**Remedial Action**
RAO	**Remedial Action Objective**
RD	**Remedial Design**
RI/FS	**Remedial Investigation/Feasibility Study**
ROD	**Record of Decision**
RPM	**Remedial Project Manager**
SOW	**Statement of Work**
TCA	**Trichloroethane**
TCE	**Trichloroethene**
UU/UE	**Unlimited Use and Unrestricted Exposure**
VAS	**Vertical Aquifer Sampling**
VC	**Vinyl Chloride**
VOC	**Volatile Organic Compound**
VP	**Vertical Profile**

Executive Summary

The United States Environmental Protection Agency (EPA), Region 5, conducted the five-year review of the remedy being implemented at the Roto-Finish Co., Inc., Superfund Site (the Site) in Portage, Michigan. This is the second five-year review for the Site. The 1997 Record of Decision (ROD) selected natural attenuation with monitoring as the remedy for the plume of contaminated groundwater associated with the Site. The five-year review is required due to the fact that the goals of unlimited use and unrestricted exposure at the Site, are not likely to be achieved within a five-year timeframe.

The ROD for the Site was signed on March 31, 1997. Simultaneously, a Preliminary Close-Out Report (PCOR) was also issued. The selected remedy called for monitored natural attenuation of the contaminated aquifer.

The remedy at the Site is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals. The goals of unlimited use and unlimited exposure will be achieved through monitored natural attenuation. EPA expects these goals to be achieved within the next 40-50 years. In the interim, exposure pathways that could result in unacceptable risks are being monitored and controlled. All immediate threats to human health and the environment have been eliminated.

At this time, EPA needs additional information before a determination of long-term protectiveness of the selected remedy can be made. Long-term protectiveness will be determined when:

- the rate of attenuation is accurately calculated,
- an adequate groundwater monitoring well network is installed to fully bound the plume, to detect any expansion and migration of the groundwater plume, and to monitor for potential impact on downgradient receptors,
- the long-term groundwater monitoring and monitoring well maintenance plan is implemented,
- institutional controls are implemented and monitored to restrict groundwater use in all areas affected by the contaminated groundwater plume until groundwater restoration cleanup standards are achieved,
- an appropriate and effective contingency remedy is proposed,
- a contingency plan is developed which identifies the triggers that will indicate when additional actions need to take place, indicate what actions will be taken, and the implementation time frame.

These six requirements are currently being determined, revised, and reviewed as part of the remedial design process. It is expected that these actions will be completed by January 2008. A long-term protectiveness determination will be made in an addendum to this Five-Year Review Report.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name (*from WasteLAN*): Roto-Finish Co., Inc.		
EPA ID (*from WasteLAN*): MID005340088		
Region: 5	**State:** MI	**City/County:** Portage/Kalamazoo
SITE STATUS		
NPL status: ☒ Final ☐ Deleted ☐ Other (specify)		
Remediation status (choose all that apply): ☐ Under Construction ☒ Operating ☐ Complete		
Multiple OUs?* ☐ YES ☒ NO	**Construction completion date:** 3/31/1997	
Has site been put into reuse? ☒ YES ☐ NO (The site is being used by Esco Inc.)		
REVIEW STATUS		
Lead agency: ☒ EPA ☐ State ☐ Tribe ☐ Other Federal Agency		
Author name: Katherine Rodriguez		
Author title: Remedial Project Manager	**Author affiliation:** U.S. EPA, Region 5	
Review period:** 9/30/2006 to 3/29/2007		
Date(s) of site inspection: 3/13/2007		
Type of review: ☒ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion		
Review number: ☐ 1 (first) ☒ 2 (second) ☐ 3 (third) ☐ Other (specify)		
Triggering action: ☐ Actual RA Onsite Construction at OU #__ ☐ Actual RA Start at OU#____ ☐ Construction Completion (PCOR) ☒ Previous Five-Year Review Report ☐ Other (specify)		
Triggering action date (*from WasteLAN*): 9/24/2002		
Due date (*five years after triggering action date*): 9/24/2007		

*[“OU” refers to operable unit.]
**[Review period should correspond to actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form – cont.

Issues:

1) In order for the remedy to be protective in the long-term, effective institutional controls (ICs) must be implemented and maintained.
2) A biodegradation rate along the core of the groundwater plume has yet to be determined.
3) A long-term groundwater monitoring well network and groundwater monitoring plan to track expansion and migration of the plume and to monitor for potential impact to downgradient receptors has not been implemented.
4) A monitoring well maintenance plan has not been implemented.
5) Monitoring wells MW-A3, MW-A5, and MW-B11 have low yield and high turbidity, limiting the ability to provide representative sample results.
6) Apparent inadequate contingency remedy (due to the inability of the two NTCRA extraction wells to fully capture the extent of the contamination plume without significant improvements, i.e., additional groundwater extraction wells).
7) A contingency plan has yet to be developed and approved.

Recommendations and Follow-up Actions:

1) A. Complete IC study within the Remedial Design to evaluate ICs and revise ICs and propose an IC monitoring plan
   B. Develop an IC Plan to document the process to complete the IC study, to evaluate existing ICs (including title work) and determine if additional or revised ICs are required, and for developing an IC monitoring plan within the O&M Plan
2) Determine biodegradation rate along the core of the plume upon completion of baseline sampling
3) Propose additional monitoring well locations and submit the Performance Monitoring Plan for approval
4) Implement a well maintenance plan
5) Redevelop/rehabilitate monitoring wells MW-A3, MW-A5, and MW-B11 if they are determined to be necessary in the long-term monitoring network
6) Propose an adequate and effective contingency remedy
7) Develop a contingency plan which identifies the triggers that will indicate when additional actions need to take place, indicate what actions will be taken, and the implementation time frame

Protectiveness Statement(s): The remedy at the Site is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals. The goals of unlimited use and unlimited exposure will be achieved through monitored natural attenuation. EPA expects these goals to be achieved within the next 40-50 years. In the interim, exposure pathways that could result in unacceptable risks are being monitored and controlled. All immediate threats to human health and the environment have been eliminated.

Long-term Protectiveness: In order to make a determination regarding long-term protectiveness of the selected remedy, EPA needs additional information. Long-term protectiveness will be determined when:

- the rate of attenuation is accurately calculated,
- an adequate groundwater monitoring well network is installed to fully bound the plume, to detect any expansion and migration of the groundwater plume, and to monitor for potential impact on downgradient receptors,
- the long-term groundwater monitoring and monitoring well maintenance plan is implemented,

- institutional controls are implemented and monitored to restrict groundwater use in all areas affected by the contaminated groundwater plume until groundwater restoration cleanup standards are achieved,
- an appropriate and effective contingency remedy is proposed.
- a contingency plan is developed which identifies the triggers (i.e., contamination in sentinel wells upgradient of groundwater receptors) that will indicate when additional actions need to take place, indicate what actions will be taken, and the implementation time frame.

These six requirements are currently being determined, revised, and reviewed as part of the RD process. It is expected that these actions will be completed by January 2008. A long-term protectiveness determination will be made in an addendum to this FYR report.

Roto-Finish Co. Inc. Site
Portage, Kalamazoo County, Illinois
Second Five-Year Review Report

I. Introduction

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and identify recommendations to address them.

The Agency is preparing this Five-Year Review report pursuant to CERCLA § 121 and the National Contingency Plan (NCP). CERCLA § 121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgement of the President that action is appropriate at such site in accordance with Section 104 or 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above such levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The United States Environmental Protection Agency, Region 5, conducted the five-year review of the remedy implemented at the Roto-Finish Co., Inc., Superfund Site (the Site) in Portage, Michigan. This review was conducted by the Remedial Project Manager (RPM) and reviewed by MDEQ for the entire Site from September 2006 through June 2007. This report documents the results of the review.

This is the second five-year review for the Site. The triggering action for this policy review is the signature date of the first five-year review on September 24, 2002. The Site's 1997 ROD declared that natural attenuation with monitoring would be used to remediate the plume of contaminated groundwater associated with the Site to unlimited use and unrestricted exposure (UU/UE). The five-year review is required due to the fact that natural attenuation will not bring hazardous substances, pollutants, or contaminants under control to allow for UU/UE within a five-year timeframe. At the present time, hazardous substances remain on the Site.

II. Site Chronology

Table 1 - Chronology of Site Events

Event	Date
Site manufacturing operations begin. Equipment produced to debur and polish metal castings and parts.	Late 1940s-early 1950s
Rest room and lab wastewaters discharged through system of septic tanks, dry wells, and tile field	To 1980
Manufacturing and testing process wastewater discharged in up to five lagoons	To 1980
Municipal water supply and sanitary sewer extended to Roto-Finish facility	1980
Sediment and water samples collected from wastewater lagoons by MDEQ	1979
Lagoons and visibly stained soils excavated and disposed in off site landfill	1979-1984
Site became final on the National Priorities List	1986
Remedial Investigation/Feasibility Study (RI/FS) consent agreement	1988
Public availability session to discuss Superfund process; fact sheet generated; information repository established	1988
Public availability session to discuss findings to date and announce further phase of field work	1992
Engineering Evaluation/Cost Analysis (EE/CA) recommended two on-site groundwater extraction wells to gather most highly contaminated groundwater, routed to Kalamazoo wastewater treatment plant	1994
Action Memorandum to execute EE/CA	Nov. 1994
Unilateral Administrative Order issued to conduct NTCRA	Jan. 1995
Extraction system installed	June 1995
Completed RI/FS and Proposed Plan released to public	Oct. 1996
Public meeting to discuss RI/FS and proposed plan	Nov. 13, 1996
ROD and PCOR completed for restoration remedy of Monitored Natural Attenuation	March 31, 1997
Remedial Design/Remedial Action Consent Decree	July 27, 1998
Five-Year Review Report	2002
Potentially Responsible Party's Draft Remedial Design	2006
Current Five-Year Review	2007
Next Five-Year Review	2012

III. Background

Physical Characteristics

The former Roto-Finish property (Attachment 1) is located at 3700 E. Milham Road in the northeast area of Portage, Michigan. This property covers approximately 7 acres and is located about 0.2 miles west of Sprinkle Road, directly east of the Kalamazoo/Battle Creek International Airport. Attachment 2 depicts the Site's total volatile organic compound (VOC) groundwater plume as identified during the December 2005 monitoring event. The Site (the former Roto-Finish property and its associated groundwater plume) are currently estimated to cover 115 acres. Rivers and creeks near the Site include Olmstead Drain/Davis Creek, located approximately 0.75 miles northeast of the Site, and Portage creek located about 2 miles northwest of the Site.

Site ground surface relief is generally flat, with elevation variations mostly less than 10 feet across the Site. Geology near the Site is primarily characterized by thick deposits of glacial outwash materials consisting of stratified sands, silts, and gravels. There is much discontinuous layering and numerous lenses of fine grained drift sediments, such as silts and clays. In the absence of other industrial activity, groundwater flow at the Site would generally move to the northwest, toward Davis Creek and Portage Creek, and on a regional basis toward the Kalamazoo River, which is about 4 miles north of the Site.

Land and Resource Use

The Roto-Finish Company manufactured specialized equipment to debur and polish metal castings, mechanical parts, and similar objects that required a smooth finish. Manufacturing operations at the Site began in the late 1940s to early 1950s, and continued until 1988 when the business was sold and the facilities were closed. Plant operations were conducted in one of two primary areas: the manufacturing building, which provided offices, plus shop areas used for equipment manufacturing and storage; and the chip/compound building, which was used for production and storage of polishing media.

A firm called Esco, Inc. is now occupying the former Roto-Finish manufacturing facility. This firm is engaged in metal fabricating activity. The immediate Site area is zoned for industrial usage (Attachment 3). Other nearby industrial activity includes plastic color pigment production, a building supply business, surgical supply manufacturing, and pharmaceutical research and manufacturing. This pharmaceutical facility, located to the south of the Site, is a significant user of groundwater.

Both Portage and the nearby city of Kalamazoo obtain municipal water from groundwater. The ROD indicated that there are seven municipal wells in the vicinity of the Site. The closest Kalamazoo municipal wells are Kalamazoo County Stations 13 and 18. They are located about 1.3 miles northeast and north of the Site respectively. Kalamazoo County Station 13 was abandoned in 1993 and plugged in 1998. Two Portage wells that serve the nearby Lexington Green residential development are located about 0.3 miles northeast of the Site. From 1989 to 2005 these two Portage municipal wells were used only to flush fire hydrants due to their high iron content. They are not expected to be influenced by the Site groundwater contamination plumes westerly/northwesterly flow direction because these wells are no longer in use due to high arsenic content. As indicated below in the interview section of this report, the four remaining functional wells identified in the ROD are; Kalamazoo Well Stations 8 and 18, the Portage Creek Well and the Garden Lane 5 Well. There have not been detections of Site contaminants in these wells.

Prior to extension of municipal water supply, it was estimated there were approximately 90 private residential wells installed in the vicinity of the Site. Subsequent to the municipal water supply extension,

the majority of the area is served by municipal water supply. A number of residential wells remain in use. Attachment 4 is the most recent map, developed by the Potentially Responsible Party's (PRP) consultant, showing private wells in the vicinity of the Site that are not connected to city water.

Contamination History

During the time of plant operation, Roto-Finish used two systems for waste disposal. Wastes from rest rooms and laboratories were routed through a system of septic tanks, dry wells, and a tile field. Wastewater from manufacturing and testing processes was discharged to one of five on-site lagoons. These lagoons were located near the eastern edge of the plant property, along the east and north sides of the chip/compound building. These lagoons were in service until 1980. In 1980 both the municipal sanitary sewer system and municipal water supply were extended to the plant, and Roto-Finish connected to these water supply/sewerage service lines.

In 1979, the MDEQ, formerly known as the Michigan Department of Natural Resources, conducted sampling of sediment and water within the wastewater lagoons. Elevated levels of heavy metals such as cadmium and chromium were detected.

Initial Response

From 1979-1984, the Roto-Finish Company, under oversight from MDEQ, performed lagoon excavation plus excavation of visibly stained surface soils. Excavated materials were taken off-site for subsequent landfill disposal. Excavated areas were backfilled with clean material.

In 1986, the Site was included on the National Priorities List. From 1987-1988, negotiations were conducted concerning performance of a RI/FS. A Consent Agreement was signed in 1988, indicating the RI/FS would be performed privately, with oversight from EPA and MDEQ. The RI/FS was conducted in three phases, from 1989-1996.

Basis for Taking Action

The RI/FS indicated that, subsequent to completion of the source control action, the primary remaining threat at the Site was posed by contaminated groundwater. Hazardous substances that have been released into the Site groundwater and exceed either maximum contaminant levels (MCLs) or Michigan Part 201 Residential Drinking Water Criteria include: vinyl chloride (VC), 1,1-dichloroethene (DCE), 1,1,1-trichloroethane (TCA), trichloroethene (TCE), 1,1,2-TCA, benzene, tetrachloroethene, and chlorobenzene.

Other VOCs, SVOCs and inorganic compounds were also detected in the groundwater. The list of chemicals of potential concern for the Site are listed in Attachment 5.

The RI/FS did not identify any unacceptable degree of current or future cancer or non-cancer risk through exposure to Site soils. Extension of municipal water supply into the Site vicinity means that there is no current unacceptable degree of risk to those downgradient groundwater users hooked up to the municipal supply. The RI/FS showed that unacceptable cancer risks would result, however, if the groundwater within the area of former Roto-Finish facility was used for drinking water purposes. Such risk was calculated to be 2 additional cases of cancer per every 100 individuals exposed for a potential future industrial drinking water scenario, and 5 additional cancer cases per 100 individuals in the case of a residential exposure scenario.

IV. Remedial Actions/Removal Actions

Voluntary Non-Time-Critical Removal Action (NTCRA) for Groundwater

In 1994, Illinois Tool Works Inc. (ITW), having purchased the Roto-Finish Site and becoming a PRP, conducted a voluntary Engineering Evaluation/Cost Analysis (EE/CA) to explore removal options that would address the highest areas of groundwater contamination at the Site. This NTCRA was intended to function until such time as the overall RI/FS could be completed, and a final site remedy selected and implemented.

The EE/CA was finished in late 1994, and the agency issued a unilateral administrative order in early 1995 calling for execution of the NTCRA. The NTCRA consisted of the installation of two extraction wells (EW-1 and EW-2) and associated piping located between Site monitoring wells MWA1 and MWA4 (see Attachment 1). At the time, this location represented the area of highest known groundwater contamination. By mid-1995, the NTCRA was installed and operating. Extracted groundwater was discharged to the Kalamazoo wastewater treatment plant.

NTCRA operating data indicated that EW-1 usually ran at an extraction rate of approximately 37-40 gallons per minute (gpm). EW-2 often functioned at an extraction rate of 41-43 gpm. Note that in July 2001, four years after the ROD was signed, the NTCRA was shut down. The shut down of the NTCRA extraction wells was intended to be temporary in order to allow the aquifer to return to a state of equilibrium so data collected during the pre-design would be representative of long-term conditions under which the natural attenuation remedy would be performing. The extraction wells currently remain in shut down mode.

Remedy Selection

Remedial Action Objectives (RAOs) were developed as a result of data collected during the RI to aid in the development and screening of remedial alternatives to be considered for the ROD. The RAOs as written in the RI/FS include:

- Prevent unacceptable exposure to impacted groundwater;
- Protect non-impacted groundwater for current and future use;
- Restore impacted groundwater for future use through reduction of chemical concentrations to levels below the preliminary remediation goals;
- Minimize the volume of untreated waste;
- Maintain protectiveness over time;
- Protect environmental receptors through reduction of chemical concentrations to levels that would be safe; and
- Comply with applicable or relevant and appropriate requirements (ARARs).

The ROD for the Site was signed on March 31, 1997. Within the same document, a PCOR was also issued for the Site. As was discussed in Section III of this Report in "Basis for Taking Action," primary risks associated with the Site are through groundwater contaminants. Therefore, Site RAOs focus on groundwater management. The purpose of the remedy, as described in the ROD, is to eliminate or reduce the risks posed by potential future exposure to contaminated groundwater and to restore the contaminated aquifer to its potential future use as a supply of municipal, residential and industrial drinking water.

Because RAOs were not explicitly stated in the ROD, the First Five-Year Review Report included the

following as the response objectives for the Site:

- Eliminate or minimize the threat posed to human health and the environment by preventing exposure to groundwater contaminants;
- Restore contaminated groundwater to Federal and State ARARs, including drinking water standards and to a level that is protective of human health and the environment within a reasonable period of time; and
- Control further migration of groundwater contamination beyond its current extent such that potential receptors are not unduly exposed to excessive contaminant levels.

The selected remedy, which deals with management of groundwater migration includes:

1. Natural attenuation (primarily intrinsic biodegradation) to restore the aquifer to the lower of either EPA or the Michigan Act 451 Part 201 Residential Drinking Water Standards 50 to 60 years after the signing of the ROD.

2. Institutional controls (ICs) to limit groundwater use until the aquifer is restored to cleanup levels. The ROD relied on the availability of a municipal water supply; the adjacent operations of the Kalamazoo/Battle Creek International Airport which limit land use and opportunity for drinking water well installation downgradient of the Site, and a local ordinance of Kalamazoo County, which requires issuance of a groundwater well permit before installation of any new drinking water well(s) in an area of environmental degradation; to restrict the use of contaminated groundwater. The ROD indicates that additional ICs such as deed restrictions, deed notices, and/or deed covenants will also be implemented where feasible and necessary to provide additional assurance of action taken to preclude undue exposure to groundwater contaminants while the process of natural attenuation is underway. (The ROD misidentified the availability of a municipal water supply and the presence of the airport as ICs. Although they are not ICs they are useful in minimizing groundwater use.)

3. Implementation of a long-term groundwater monitoring program to track the progress and the effectiveness of natural attenuation, and to identify any changes in the land and groundwater use and groundwater conditions. The monitoring program will be designed to track horizontal and vertical extent of the contaminated groundwater plume boundaries, monitor changes in chemical constituents and concentrations, and collect data to confirm that intrinsic biodegradation is occurring. The monitoring program will consist of existing and new monitoring wells, and will attempt to detect any expansion of the plume toward new or existing water supply wells.

4. Contingency planning to be developed to respond to any differences in the actual performance of the remedy and actual site conditions, as compared to expected performance and expected site conditions. This includes changes in land or groundwater use; differences between the predicted and the actual fate and transport of groundwater contaminants and contaminant concentrations; differences between the projected and the actual rate of intrinsic biodegradation; and changes in the protectiveness of the remedy. The contingency plan will include modifications to ICs, modifications to the monitoring programs and implementation of existing NTCRA extraction system as a contingency remedy, if necessary.

5. Maintenance of the existing NTCRA extraction system and implementation as a contingency remedy, if necessary, to respond to any decreases in the actual rate of biodegradation, potential risks to users, or any unanticipated changes in the Site conditions to the extent that the remedy is not performing as anticipated or is no longer protective.

Remedy Implementation

The remedial design (RD)/remedial action (RA) is governed by the 1998 Consent Decree (CD) and attached Statement of Work (SOW). By April 2001, a RD Work Plan including Pre-Design Investigations, Field Sampling Plan, and Quality Assurance Project Plan were developed to direct future RD activities. Pre-design investigations were conducted in a series of 5 phases in order to gather sufficient information to complete the RD and implement the RA.

The RD documents, entitled "Pre-Design Investigation Summary and Site Conceptual Model Report" and the "Remedial Action Plan: Performance Groundwater Monitoring Plan" were submitted in draft on August 15, 2006 and February 9, 2007 and are concurrently being reviewed and revised. Once these documents are approved, the RD will be complete, and the RA in accordance with the documents will begin. The Site has already qualified for inclusion on the Construction Completion List; the PCOR was incorporated into the ROD on March 31, 1997. An Interim RA Report will be completed after all additional groundwater monitoring wells and sentry wells have been successfully installed, and all deed covenants/ICs have been successfully implemented. In addition to the CD and attached SOW, the RA will be governed by the approved Remedial Action Plan. The following actions have been taken to implement the selected remedy according to the CD.

Natural Attenuation

The 1999 ARCADIS Technical Memorandum prepared for the PRP briefly discusses attenuation of chlorinated VOCs. The attenuation mechanism of most interest is the biotic degradation of chlorinated ethanes and ethenes. The Technical Memorandum predicts a biotic degradation sequence for TCE as follows:

TCE (yields) DCE (yields) VC (yields) ethene (yields) ethane (yields) carbon dioxide and water

In Section 4, on page 16, of the memorandum ARCADIS notes:

> ...The more highly chlorinated compounds are most susceptible to reductive dechlorination because of their higher state of oxidation... Consequently, the later steps of this process, such as degradation of cis-1,2-DCE to VC, and degradation of VC to ethene, generally require more strongly reducing conditions in groundwater than do the initial degradation steps. Often a groundwater environment is not reducing enough...to allow for complete degradation to occur and an accumulation of daughter products is observed (such as an accumulation of cis-1,2-DCE or VC). As a result, the oxidation-reduction potential (ORP or redox) of the groundwater system is dependent on, and can influence, the specific reductive dechlorination processes...

Both EPA and the PRP agree that natural attenuation of groundwater is occurring on Site. This conclusion is supported by the fact that there is a decrease in concentrations of contaminants at particular wells as well as the presence of degradation products. The PRP still needs to determine the current rate of degradation along the core of the plume. Two years of quarterly sampling of the core wells is necessary before the degradation rate can be determined. The PRP completed sampling for this purpose in March 2007.

Institutional Controls

Institutional controls (ICs) are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for UU/UE.

Attachment 6 contains a map that identifies those areas that do not support UU/UE. The table below summarizes institutional controls for these restricted areas.

Table 2 - Institutional Controls Summary Table

Media, Engineered Controls, & Areas that Do Not Support UU/UE Based on Current Conditions.	IC Objective	Title of Institutional Control Instrument Implemented (note if planned)
Groundwater – current area that exceeds groundwater cleanup standards identified in Attachment 6.	Prohibit groundwater use until cleanup standards are achieved	Kalamazoo County Sanitary Code, Article III Water Supply Regulations, Chapter 13-15
		Restrictive Covenant for the former Roto-Finish Property

ICs currently in place include:

- A Kalamazoo County ordinance (Kalamazoo County Sanitary Code, Article III Water Supply Regulations, 2003) that requires the issuance of a well permit for the construction of a private drinking water well from the Environmental Health Bureau within the Kalamazoo County Health and Community Services Department (KCHCSD). The Site has been identified by KCHCSD as a groundwater contamination site of concern as depicted in Attachment 7. When the KCHCSD receives an application for installation of a residential well, the location for the proposed well is evaluated for the proximity to the known area of groundwater contamination. If the proposed well location is near a known groundwater contamination area an additional review is conducted in order to determine whether a well permit is issued or denied. A copy of the ordinance is located in Attachment 6.
- A Declaration of Restrictive Covenant, dated November 13, 1995, and recorded with Kalamazoo County on December 15, 1995 on the former Roto-Finish property. A copy is located in Attachment 6.

Additionally, although not an institutional control, the Kalamazoo/Battle Creek International Airport's current policies prohibit the construction of a water supply well on airport property.

As mentioned above, the ROD requires specific ICs and articulates that consideration should be given to implementation of additional ICs such as deed restrictions, deed notices, and/or deed covenants should such items be feasible and necessary to provide additional assurance of action taken to preclude undue exposure to groundwater contaminants while the process of natural attenuation is underway.

The Consent Decree states in Section II.2, "At a minimum, restrictive deed covenants shall be required for all properties where groundwater contaminants exceed the performance standards." Restrictive covenants for additional properties are currently being sought for all properties impacted by the groundwater contamination. The ICs currently in place are being reevaluated and the need for modifications and or additional ICs will be determined within the final RD documents. Based on the Site inspection and interviews described in Section VI, EPA is not aware of any inconsistent site uses.

Furthermore, an IC study to evaluate ICs is required as part of this review. To that end, on December 11, 2006, U.S. EPA requested that the PRP conduct an IC study which will evaluate existing ICs and the need for modifications and or additional ICs as part of the Remedial Design. Therefore, the IC study is currently being conducted as part of the RD process. An IC Plan will be developed by EPA within six months to document the process to complete the IC study, to evaluate existing ICs (including title work)

and determine if additional or revised ICs are required, and for developing an IC monitoring plan within the O&M Plan.

Long-term Monitoring Plan

The PRP monitors the current well network (Attachment 1) annually in November. All newly installed wells are undergoing quarterly baseline monitoring for a minimum of two years. The PRP is responsible for requesting a reduction in monitoring events if they believe one is appropriate. The RD documents were submitted in draft form on August 15, 2006 and February 9, 2007 and are under review by EPA and MDEQ. Final wells will be installed and the long-term groundwater monitoring plan will be implemented according to the approved Remedial Action Plan: Performance Monitoring Program Report. The monitoring parameters are found in Attachment 5. Whether all inorganics will be monitored will be decided in the final RD documents.

Contingency Planning

On August 15, 2006 and February 9, 2007, the PRP submitted a draft a contingency plan within the RD documents. The contingency plan is under review by EPA and MDEQ. The final RD documents will contain an approved contingency plan which will identify the triggers that will indicate when additional actions need to take place, indicate what actions will be taken, and the implementation time frame.

Contingency Remedy

The NTCRA system has been maintained as the contingency remedy in shutdown mode since it was turned off in July 2001. Data from Pre-Design field work indicates that a case could be made that the NTCRA, which consists of two extraction wells, would not perform a particularly efficient job in capturing the extent of the contamination plume without significant improvements. The general edge of the groundwater plume is located about two thousand feet downgradient of the extraction well locations and the downgradient portion of the plume exists at depths of 120-140 feet below ground surface. The lateral and vertical extent of the plume is beyond the extraction wells' estimated capture zone. This indicates the need to develop an appropriate and effective contingency remedy for the Site. Contingency remedies are currently being evaluated in cooperation with the EPA, the MDEQ, and the PRP representatives. The final RD documents will propose an appropriate and effective contingency remedy for the Site.

Operation and Maintenance

The primary activities associated with operation and maintenance (O & M) of the Site include maintenance of monitoring wells and ICs. As mentioned above, an IC monitoring plan will be developed as part the O&M Plan. The specific activities will be included in the approved "Remedial Action Plan: Performance Monitoring Program Report."

V. Progress Since the Last Review

Table 3 - Actions Taken Since the Last Five-Year Review

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Lack of plume depiction	Reviewing agencies will review with PRP technical consultants what if any further steps need to be taken to depict the contaminant plume as accurately as possible.	EPA/MDEQ	9/30/2003	Field work was conducted to delineate the plume. The plume has been sufficiently delineated in order to move to the RD phase.	12/2006
Lack of projection of a biodegradation rate for the groundwater plume	Evaluate 2002 data to better define plume core which may yield information needed for calculation of plume biodegradation rate. Calculate plume biodegradation rate	PRP	9/30/2003	Core wells were installed and baseline quarterly monitoring began. Rate will be determined after analysis of March 2007 data.	07/2005
Lack of an operation and maintenance plan with allowance for necessary monitoring well redevelopment	Prepare operations and maintenance plan that considers well redevelopment	PRP	No date provided	Drafts of the O & M plan were submitted	08/2006 and 02/2007
Lack of capture efficiency of the previous NTCRA	Assess the need to modify the contingency remedy	PRP	No date provided	Contingency remedies are currently being evaluated in cooperation with the EPA, the MDEQ, and the PRP representatives.	08/2006 and 02/2007
N/A	Evaluate possible downgradient recipient points	PRP	9/30/2003	Maps of potential groundwater users were submitted	2004

In the last Five-Year Review Report, EPA made the following protectiveness statement:

> A long-term protectiveness determination of the remedy at the Site cannot be made at this time until further information is obtained. Further information will be obtained by taking the following actions: a. Determining the core of the plume of contamination; b. Reevaluating plume configuration; c. Determining if possible a biodegradation rate for the plume of contamination; d. Evaluating possible downgradient recipient points. However, because of past actions to promote clean drinking water supply, EPA is confident that for the short term the Site does not pose human health and environmental problems.

Action Taken: As the 2002 Five-Year Review Report was being completed, the results of the Phase II Pre-Design Investigation were expected to address some of the issues listed above. From August 19 to October 2002, the PRP's consultant, MACTEC Engineering and Consulting, Inc. (MACTEC) focused on collecting additional vertical aquifer sampling (VAS) data from eight locations (VP 9-11, VP-16, VP 22-25) west of the Site on property owned by Kalamazoo/Battle Creek International Airport. They completed groundwater sampling from 31 existing site monitoring wells and two NTCRA recovery wells, installed six

additional water table wells and gathered Site water level data in order to gather additional information as required for the pre-design.

On June 20, 2003 MACTEC, submitted a report entitled, "Natural Attenuation Assessment". This Report was presented as an assessment of the progress of natural attenuation at the Site based on data from the RI/FS, and groundwater data collected during the RI/FS through the Phase I and Phase II Pre-Design Studies. EPA and MDEQ determined that additional field work as described in the CD and the RD Work Plan was required to gather the data required to: complete the pre-design studies, make determinations of natural attenuation at the Site, and make a long-term protectiveness determination. This report was never approved and is now referred to as a draft document.

In October of 2003, the KCHCSD sampled residential/private drinking water wells to determine whether they had been impacted by the Site. KCHCSD determined where residential /private drinking water wells existed from Lovers Lane to Portage Road and from Milham to Portage Road by using the city of Portage's geographic information system and conducted a field check to verify. For locations in the city of Kalamazoo, the KCHCSD compared water billing records to locations for which the county had private well records. There may have been some residents with private wells within these areas that may also be connected to municipal water that were not sampled due to potential gaps in the data. There were 17 wells sampled and analyzed for VOC compounds. No chlorinated compounds associated with the Site were found in any of the wells. Two wells were resampled in June of 2004 with similar results. Two of the wells have since been abandoned. Although a third property is now hooked up to municipal water, a well abandonment record has not been submitted to the County.

MACTEC provided maps of private and public well locations near the Roto-Finish Site (Attachment 4 and Attachment 8) in the spring of 2004 and again with its submission of the Draft RD documents. The data indicates that there are still several private well users in the vicinity of Portage Road and Milham Avenue which have not hooked up to other municipal water supplies.

During September 9-November 5, 2004 MACTEC conducted a Phase III Pre-Design Investigation to install plume core wells and gather additional information regarding the downgradient edge of the plume. Using data gathered in Phase I and II Pre-Design Investigations and VAS data from five new locations (VP 27-31) on the west side of the main airport runway, six core wells (CMW 1-6) were installed. Additionally, MACTEC sampled 31 monitoring wells, two NTCRA recovery wells, and the six new core wells.

Quarterly monitoring of the core wells began in July 2005. The final sampling event before the degradation/attenuation rates can be established will be completed in March 1007. Hydraulic conductivity of the core monitoring wells was also measured.

Because the monitoring wells farthest downgradient had concentrations above MCLs, MACTEC conducted a Phase IV Pre-Design Investigation in attempts to delineate the Site groundwater plume. During October – December 2005, MACTEC collected VAS data from four locations (VP 32- 35). Five monitoring wells were subsequently installed near these VP locations for potential use as sentry wells. Additionally, MACTEC sampled 43 monitoring wells including the core wells, the two NTCRA recovery wells and the five newly installed wells. Hydraulic conductivity measurements were taken for the five new wells and selected existing wells. Additionally, during this timeframe, pumping well TW-1 and monitoring well MW-B2A were abandoned in accordance with MDEQ protocols.

MACTEC determined that Phase IV Pre-Design Investigation did not delineate the plume based on

concentrations of contaminants of concern above MCLs in monitoring wells CMW-5 and MW-C3 and proposed to conduct a Phase V Pre-Design Investigation. This field work occurred June 5, 2006 - July 11, 2006. MACTEC collected VAS data from three locations (VP 36-38). The profile of VP36 may have yielded additional information regarding contamination, but was terminated early, at 123 feet below grade. Two wells were subsequently installed near the VP37 location and in the same bore hole as VP38. MACTEC completed the investigation with quarterly sampling of 13 wells, the core wells and the wells installed during Phase IV and Phase V Pre-Design Investigations.

With this last set of data, EPA concluded that because the plume had been sufficiently delineated and the core of the plume was undergoing quarterly monitoring in order to determine the degradation rate for the groundwater plume, the RD documents, including the long-term monitoring plans would be drafted to, among other actions, track horizontal and vertical extent of the contaminated groundwater plume boundaries and monitor changes in chemical constituents and concentrations. On August 15, 2006 and February 9, 2007, MACTEC submitted two draft RD documents titled, "Draft Pre-Design Investigation Summary and Site Conceptual Model Report" and "Remedial Action Plan: Draft Performance Monitoring Plan." These documents are concurrently being reviewed and revised. The approval of these documents will indicate the completion of the RD and the initiation of the RA.

Additional Issues and Recommendations from the 2002 Five-Year Review Report included:

- Lack of an O & M plan with allowance for necessary monitoring well redevelopment. Development of an O & M plan that will consider well redevelopment needs should be prepared.
  Action Taken: In lieu of an approved O & M Plan, the agencies requested the PRP determine well development needs. Comments on the Phase IV Report included that EPA agreed that the comparison between the 2005 and 2001 conductivity testing did not indicate widespread well problems. However, the nearly an order of magnitude decrease in the hydraulic conductivity of MW-B11 indicates that redevelopment of MW-B11 is appropriate. MW-A3 has high turbidity and low groundwater yield and should be redeveloped. Additionally, there is uncertainty as to whether well MW-A5 has exhibited potential problems with turbidity or if the issues can be attributed to turbidity meter malfunction. To eliminate uncertainty, MW-A5 should also be redeveloped. The final RD documents will contain an O & M plan that includes triggers for well redevelopment, rehabilitation, repair or replacement and a process for well development implementation as needed.

- Apparent lack of capture efficiency of the previous NTCRA
  Action Taken: Contingency remedies are currently being evaluated in cooperation with the EPA, the MDEQ, and the PRP representatives. The final RD documents will propose an appropriate and effective contingency remedy for the Site.

- Pending strength of case developed for greater movement of the plume towards southwesterly groundwater users, discussions between such EPA, PRP representatives, and such groundwater users may be advisable.
  Action Taken: The plume movement is currently determined to be to the west/northwest. If the plume migrates beyond any of the proposed sentry wells, discussions with groundwater users may be advisable in addition to activation of contingency plan actions.

VI. Five-Year Review Process

Administrative Components

The Roto-Finish five-year review team was led by Katherine Rodriguez, RPM for the EPA and included MDEQ project manager Beth Mead-O'Brien, MDEQ project geologist, Charles Graff, EPA geologist, Dr. Luanne Vanderpool, EPA, IC coordinator, Sheri Bianchin, EPA attorney, Susan Prout and Michigan ORC IC coordinator, Eileen Furey. MACTEC was notified of the upcoming five-year review in November 2006.

From September 2006 to March 29 2007, the lead agency completed the following activities:
•Community Involvement
•Document Review
•Data Review
•Site Inspection
•Interviews
•Five-Year Report Development and Review

From February to April 2007, EPA and MDEQ reviewed the draft report and submitted comments. The comments were addressed immediately following receipt, and a revised report was reviewed and sent to the director of the Superfund Division for signature.

Community Involvement

EPA informed the community via public announcement (Attachment 9) that a Five-Year Review Report compilation effort had commenced for the Site. The notice issued described key elements of the remedy as stated in the 1997 ROD, noted current activity at the Site, and provided contacts for further information. The notice invited the public to submit comments; however to date no comments have been received.

EPA has also sent correspondence to representatives of ITW informing them of the Five-Year Review Report development effort. It is important that the PRP be kept informed of report developments, since any key recommendations would need to be coordinated with such party.

Document Review

This five-year review consisted of a review of relevant documents including the ROD, SOW, Pre-Design Reports and monitoring data (Attachment 10). Applicable cleanup standards/goals, as listed in the 1997 ROD, were also reviewed (Attachment 11).

Data Review

The groundwater data results for selected parameters from the plume core wells are presented, below, since they were installed in November 2004. Shading indicates parameters above MCLs; 7 µg/L 1,1-dichloroethene, 5 µg/L trichloroethene, 2 µg/L vinyl chloride. J= Estimated Value, U=Less than Reporting Limit, UJ=Less than Estimated Reporting Limit, R=Unusable result. (*)The November data results are based on unvalidated data and should be considered preliminary data.

Table 4 - Plume Core Wells – Selected Parameters

Well CMW-1									
Parameter (µg/L)	**MCLs**	**Nov 04**	**Jul 05**	**Sept 05**	**Nov 05**	**Mar 06**	**Jul 06**	**Sept 06**	**Nov 06***
Trichloroethene	5	7J	12	13	4.7	21	24	31	23*
1,1-Dichloroethene	7	28	44	26	11	48	56	77	72*
Vinyl Chloride	2	4J	11	9J	0.5UR	15	9.3	12J	11J*
Ethane	N/A	160	0.75	0.44	2.1	0.88	0.5	0.38	0.44*
Ethene	N/A	6.5	6.6	5.2	12	11	9.7	4.6	9.2*

Well CMW-2									
Parameter (µg/L)	**MCLs**	**Nov 04**	**Jul 05**	**Sept 05**	**Nov 05**	**Mar 06**	**Jul 06**	**Sept 06**	**Nov 06***
Trichloroethene	5	17	1J	5J	11	4.4	14	3.1J	8.4U*
1,1-Dichloroethene	7	31	3J	25	39	34	47	44	37*
Vinyl Chloride	2	6J	10U	5J	14J	15	12	15	9.6*
Ethane	N/A	0.26	0.12	0.06	0.078	0.1	0.074	0.074	0.09*
Ethene	N/A	3.3	9.8	4	7.2	9.4	6.4	5.9	5.9*

Well CMW-3									
Parameter (µg/L)	**MCLs**	**Nov 04**	**Jul 05**	**Sept 05**	**Nov 05**	**Mar 06**	**Jul 06**	**Sept 06**	**Nov 06***
Trichloroethene	5	14	2J	10	9.7	11	6	5.8J	2.2J*
1,1-Dichloroethene	7	65	19	42	45	62	48	46	32*
Vinyl Chloride	2	0.8J	10U	3J	0.5UR	7.6	4.3	5.7J	4.4J*
Ethane	N/A	4.2	1.5	0.06	0.16	0.053	0.051	0.053	0.041*
Ethene	N/A	4.1	13	1	5	1.2	1.6	1.4	1.3*

Well CMW-4									
Parameter (µg/L)	**MCLs**	**Nov 04**	**Jul 05**	**Sept 05**	**Nov 05**	**Mar 06**	**Jul 06**	**Sept 06**	**Nov 06***
Trichloroethene	5	10U	10U	10U	0.68	0.41J	0.49J	5U	0.81*
1,1-Dichloroethene	7	82	34	65	100	42	84	80	56D*

Vinyl Chloride	2	2J	10U	10U	2.1	1.4	1.1	1.5J	1*
Ethane	N/A	8.4	5.5	0.17	0.28	4.2	0.058	0.57	0.11*
Ethene	N/A	6	12	1	1.9	17	0.56	9.1	2.5*

Well CMW-5									
Parameter (µg/L)	**MCLs**	**Nov 04**	**Jul 05**	**Sept 05**	**Nov 05**	**Mar 06**	**Jul 06**	**Sept 06**	**Nov 06***
Trichloroethene	5	10U	10U	10U	0.45J	0.13J	0.23J	0.25J	0.25J*
1,1-Dichloroethene	7	10U	10U	10U	0.5U	0.2J	0.5U	0.11J	0.5U*
Vinyl Chloride	2	4J	10U	11	19	2.1	7	9.6J	7.1*
Ethane	N/A	1.5	0.82	0.074	0.055	0.37	0.06	0.048	0.076*
Ethene	N/A	2.2	13	1.4	1.3	13	1.5	1.1	5.1*

Well CMW-6									
Parameter (µg/L)	**MCLs**	**Nov 04**	**Jul 05**	**Sept 05**	**Nov 05**	**Mar 06**	**Jul 06**	**Sept 06**	**Nov 06***
Trichloroethene	5	10U	10U	10U	0.5U	0.5U	0.5U	0.5U	0.5U*
1,1-Dichloroethene	7	10U	10U	10U	0.5U	0.5U	0.5U	0.5U	0.5U*
Vinyl Chloride	2	3J	2J	1J	0.5U	3.3	5	4.1J	2.9*
Ethane	N/A	6.3	0.23	0.041	0.040	0.093	0.038	0.059	0.068*
Ethene	N/A	4.5	3.4	1.8	2.3	3	1.9	3.5	1.9*

The data indicate that contaminants are decreasing and attenuating as they move downgradient along the plume. After analysis of the March 2007 groundwater sample data is completed, the biodegradation rate will be determined along the core of the plume. Additional wells that have been recently installed at the downgradient edge of the plume and are currently being monitored quarterly (MW-C1, MW-C2A, MW-C2B, MW-C5 and MW-C6) have shown no detections to minimal detections (in some cases slightly above MCLs in MW-C2A) of VC. Detections of 1,1-DCE and TCE have been below MCLs and mostly at minimal detections.

Site Inspection

The Site inspection was conducted on March 13, 2007 by the EPA RPM, the MDEQ RPM and the MDEQ geologist. (See Attachment 12). The purpose of the inspection was to assess the protectiveness of the remedy, including the integrity of the wells installed at the Site. A checklist of the wells is also located in Attachment 12. Thirteen wells were found to be missing locks and/or not secure and many wells were not properly labeled. Although some of the wells were labeled on the spot, at least ten, up to twelve remain unlabeled. The PRP's consultant indicated that during the March 2007 sampling event labels will be

applied to wells and security will be ensured for the wells where there was not a lock or a bolt was missing, not screwed tightly or malfunctioning. A digital picture of each well will be taken upon completion and where appropriate steps taken to ensure the security of the wells will be documented in writing. The PRP's consultant also indicated that they plan to install permanent brass plates for the monitor wells when the wells are approved for long-term monitoring, and after any re-designation of ID numbers.

The restrictive covenant that is in place on the former Roto-Finish property prohibits the drilling of water wells or using existing wells as a source of drinking water. The Kalamazoo County ordinance prohibits the drilling of a drinking water well without a permit. The airport policy prohibits installation of water supply wells on the airport property. No activities were observed that would have violated these institutional controls, no new uses of groundwater were observed.

Interviews

Interviews were conducted with the EPA Water Division in conjunction with the MDEQ Water Bureau as well as the KCHCSD. On December 6, 2006, Kim Finkbeiner of the KCHCSD sent a memo in response to questions asked in an EPA email sent on November 30, 2006. There was a follow up call on December 7, 2006 for clarifications. This interview was in order to assess the Kalamazoo County ordinance which regulates the installation of residential wells in the County. The County has identified the Roto-Finish Site as a known groundwater contamination area. Ms. Finkbeiner indicated that when the KCHCSD receives an application for installation of a residential well, the location for the proposed well is evaluated for its proximity to the known area of groundwater contamination. If the proposed well location is near a known groundwater contamination area an additional review is conducted in order to determine whether a well permit is issued or denied. The map that the County currently uses as the known contamination area for the Roto-Finish Site is from a 1999 MDEQ notice of migration. EPA indicated to Ms. Finkbeiner that as a result of this review, a procedure for updates of the Site contamination area would be created and implemented so that the County could make decisions based on the most up-to-date data. Ms. Finkbeiner did indicate that the last well that the County permitted to be installed in the vicinity of the Site was in 2003. This well is west of the Site along Portage Road. Since 2003 that well has been sampled annually for VOCs and no VOC contamination has been detected.

Thomas Murphy of the EPA Safe Drinking Water Branch was contacted to verify the determinations made in the previous Five-Year Review Report regarding Kalamazoo County and City of Portage water intake wells in the vicinity of the Site. He in turn contacted the MDEQ Water Bureau for the most recent data. The representative of the MDEQ Water Bureau indicated that Kalamazoo County Station 13 was abandoned in 1993 and plugged in 1998 due to high arsenic. Kalamazoo County Stations 8 and 18 were sampled in 2003 and 2005. No VOCs (including VC) were detected. These same results were found in Portage Creek and Garden Lane 5 wells. City of Portage, Lexington Green 1 and 2 wells are not being used due to their high iron and high arsenic content. In the past the Lexington Green wells were used solely for flushing fire hydrants but this practice has since been discontinued due to the arsenic concentrations.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

Although natural attenuation is occurring, it is unclear whether performance standards will likely be met, because the rate of natural attenuation has not been determined along the core of the plume. The data from the current quarterly monitoring of the plume core wells will be used to determine the rate of attenuation

by September 2007 and whether the remedy is protective for the long term.

The current extent of the groundwater plume is generally defined but additional lateral, sentry and vertical monitoring wells have yet to be installed to track long-term expansion and migration of the groundwater plume. These wells are also necessary to positively determine, within a reasonable time period, whether a potential downgradient groundwater user would be exposed to contamination. In 2003, 17 residential wells were sampled and analyzed for VOC compounds. No chlorinated compounds associated with the Site were found in any of the wells. One residential well is monitored annually and continues to remain unaffected by site contamination. Future monitoring of residential wells will be addressed in the final RD documents.

Two ICs currently exist at the Site: the Kalamazoo County ordinance; and the restrictive covenant on the former Roto-Finish property. The airport policy is useful as an informational control, but a more enforceable IC is required. The current restrictive covenant which was recorded with Kalamazoo County on December 1995 on the former Roto-Finish property, may need to be revised to assure its enforceability. Although there is a county ordinance that requires permits for all residential well installations, a restrictive covenant that "runs with the land" is required for all portions of affected properties. Appropriate ICs are not in place for all areas affected by the groundwater plume. All of the ICs are currently being reevaluated and the need for modifications and or additional ICs will be determined within the final RD documents. Appropriate ICs need to be implemented to prevent exposure over the long term. The PRP is conducting an IC study that is expected to be completed in September 2007.

Upon approval of the RD documents, the O & M Plan will be implemented to monitor ICs and to ensure monitoring well maintenance and redevelopment are appropriately conducted in order to obtain long-term representative sampling.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?

The previous Five-Year Review Report indicated inaccuracies in the 1997 ROD with the MCLs for 1,1-dichloroethane (DCA) and 1,2-DCE. A memo was added to the file on May 31, 2005 to clarify these errors as well as others. The corrected ROD cleanup criteria are included in Attachment 5. Although there was no EPA MCL for 1,1-DCA at the time of the ROD, MDEQ Part 201 criteria was 880 µg/L for 1,1-DCA. Therefore, the corrected ROD cleanup criterion is 880 µg/L for 1,1-DCA. 1,2-DCE was appropriately corrected to distinguish each isomer with a separate cleanup criteria; cis-1,2-DCE is 70 µg/L and trans-1,2-DCE is 100 µg/L.

Among other revisions of the cleanup criteria, of the four metals that were identified in the ROD that did not have cleanup criteria, two have been corrected to have cleanup criteria. Iron was misidentified as not having criteria. Although there were no EPA MCLs for iron, MDEQ had Part 201 criteria for iron of 300 µg/L. The corrected cleanup criterion for iron is 300 µg/L. Although there were no EPA MCLs for aluminum, MDEQ had Part 201 aesthetic criteria for aluminum of 50 µg/L. The corrected clean up criterion for aluminum is 50 µg/L.

MACTEC assessed the metals as contaminants of concern in the 2003 Draft Monitored Natural Attenuation Report. In 2003, EPA accepted their rationale and agreed that no additional monitoring of metals except for arsenic and thallium was necessary. Arsenic levels were too close to performance standards to support discontinuing monitoring and since the reporting limits for thallium were higher than performance standards it was not possible to say that the analytical results met performance standards. The

ROD Cleanup Criteria were revised in 2005 (Attachment 5) and have the potential to change which metals need to be sampled at the Site. Therefore, as part of the RD, MACTEC is using the 2005 revised ROD Cleanup Criteria to determine whether additional metals need to be included in future groundwater sampling.

In order to provide additional information on biodegradation mechanisms and to establish baseline data in support of biodegradation estimates, MACTEC will continue sampling for the constituents in Table 2-2 of the Final Field Sampling Plan (2001): ferrous iron (field analytical), magnesium, potassium, calcium, sodium, total iron, total manganese, and dissolved manganese.

Additionally, EPA and MDEQ recommended monitoring for 1,4-dioxane because it is associated with 1,1,1-Trichloroethane, generally does not biodegrade, is persistent in the groundwater and was not sampled historically. The Agencies will also consider splitting samples and analyzing for 1, 4 Dioxane.

Basic assumptions concerning exposure, toxicity, and desired cleanup levels are justified.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

The 1997 ROD had the contingency of reactivating the two NTCRA extraction wells should difficulty arise with the basic monitored natural attenuation approach. Data from Pre-Design field work indicates that a case could be made that these two extraction wells would not perform a particularly efficient job in capturing the extent of the contamination plume without significant improvements. The general edge of the groundwater plume is located about two thousand feet downgradient of the extraction well locations and the downgradient portion of the plume exists at depths of 120-140 feet below ground surface. The lateral and vertical extent of the plume is beyond the extraction wells' estimated capture zone. This indicates the need to develop an appropriate and effective contingency remedy for the Site. Contingency remedies are currently being evaluated in cooperation with the EPA, the MDEQ, and the PRP representatives. The final RD documents will propose an appropriate and effective contingency remedy for the Site.

Previous information that was of concern in the last review included the assumption that the plume had migrated to a more southwesterly direction from the previously assumed northwest groundwater flow direction. This assumption was not confirmed; the plume is currently moving in a westerly/northwesterly direction which is consistent with the direction of groundwater flow which has existed since the early 1990s. Additionally there was a concern with the potential loss of groundwater monitoring well transmissivity. This was further investigated and during Phase IV; hydraulic conductivity was measured and compared to the 2001 data. The comparison between the 2005 and 2001 conductivity testing did not indicate widespread well problems. However, the nearly one order of magnitude decrease in the hydraulic conductivity of MW-B11 indicates that redevelopment of MW-B11 is appropriate. MW-A3 also has high turbidity and low groundwater yield and should be redeveloped. Additionally, there is uncertainty as to whether well MW-A5 has exhibited potential problems with turbidity or if the issues can be attributed to turbidity meter malfunction. To eliminate uncertainty, MW-A5 should also be redeveloped.

There is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

Despite the lack of approved RD documents the remedy is progressing. The core wells have been installed

in order to determine the rate of biodegradation after completion of baseline monitoring. There are ICs that restrict groundwater use but additional controls are needed to restrict groundwater use within all affected portions of the groundwater plume. Monitoring wells have been installed that verify that the general contamination boundary has been identified, but additional wells need to be installed to track expansion and migration of the groundwater plume. The remedy is currently protective but additional work is needed before EPA can determine long-term protectiveness has been met. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment, and there have been no changes to the standardized risk assessment methodology that could affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

VIII. Issues

Table 5 - Issues

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
In order for the remedy to be protective in the long-term, effective institutional controls must be implemented and maintained	N	Y
A biodegradation rate along the core of the groundwater plume has yet to be determined	N	Y
A long-term groundwater monitoring well network and groundwater monitoring plan to track expansion and migration of the plume and to monitor for potential impact on downgradient receptors has not been implemented	N	Y
A monitoring well maintenance plan has not been implemented	N	Y
Monitoring wells MW-A3, MW-A5 and MW-B11, exhibit low yield and high turbidity, limiting the ability to provide representative sample results	N	Y
Apparent inadequate contingency remedy (due to the inability of the two NTCRA extraction wells to fully capture the extent of the contamination plume without significant improvements, i.e., additional groundwater extraction wells)	N	Y
A contingency plan has not been developed and approved	N	Y

IX. Recommendations and Follow-up Actions

Table 6 - Recommendations and Follow-Up Actions

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Institutional Controls	Complete IC study within RD to evaluate ICs and revise ICs and propose an IC monitoring plan.	PRP	State/EPA	Sept 2007	N	Y
	Develop an IC Plan to document the process to complete the IC study, to evaluate existing ICs (including title work) and determine if additional or revised ICs are required, and for developing an IC monitoring plan within the O&M Plan	EPA		Dec 2007	N	Y
Biodegradation Rate	Determine rate along the plume core upon completion of baseline sampling	PRP	State/EPA	Sept 2007	N	Y
Long-term Monitoring Well Network and Groundwater Monitoring Plan	Propose additional monitoring well locations and submit the Performance Monitoring Plan for approval	PRP	State/EPA	Sept 2007	N	Y
Monitoring well maintenance plan	Implement a well maintenance plan	PRP	State/EPA	Sept 2007	N	Y

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Monitoring wells with low yield and high turbidity	Redevelop/rehabilitate monitoring wells MW-A3, MW-A5, and MW-B11 if they are determined to be necessary in the long-term monitoring network	PRP	State/EPA	Nov 2007	N	Y
Contingency Remedy	Propose an adequate and effective contingency remedy	PRP	State/EPA	Sept 2007	N	Y
Contingency Plan	Develop a contingency plan which identifies the triggers that will indicate when additional actions need to take place, indicate what actions will be taken, and the implementation time frame	PRP	State/EPA	Sept 2007	N	Y

The RD documents are concurrently being revised by the PRP's consultant and reviewed by EPA and MDEQ to propose additional institutional controls as needed and indicate how they will be monitored, document a rate of biodegradation along the core of the plume, propose additional locations for well installation, provide a long-term groundwater monitoring and well maintenance plan, and will include an appropriate and effective contingency plan and contingency remedy for the Site. The RD is expected to be completed and approved September 2007 which will also mark the beginning of the Remedial Action.

X. Protectiveness Statement

The remedy at the Site is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals. The goals of unlimited use and unlimited exposure will be achieved through monitored natural attenuation. EPA expects these goals to be achieved within the next 40-50 years. In the interim, exposure pathways that could result in unacceptable risks are being monitored and controlled. All immediate threats to human health and the environment have been eliminated.

Long-term protectiveness will be determined when:

- the rate of attenuation is accurately calculated,
- an adequate groundwater monitoring well network is installed to fully bound the plume, to detect any expansion and migration of the groundwater plume, and to monitor for potential impact on downgradient receptors,

- the long-term groundwater monitoring and monitoring well maintenance plan is implemented,
- institutional controls are implemented and monitored to restrict groundwater use in all areas affected by the contaminated groundwater plume until groundwater restoration cleanup standards are achieved,
- an appropriate and effective contingency remedy is proposed,
- a contingency plan is developed which identifies the triggers that will indicate when additional actions need to take place, indicate what actions will be taken, and the implementation time frame.

These six requirements are currently being determined, revised, and reviewed as part of the RD process. It is expected that these actions will be completed by January 2008. A long-term protectiveness determination will be made in an addendum to this FYR report.

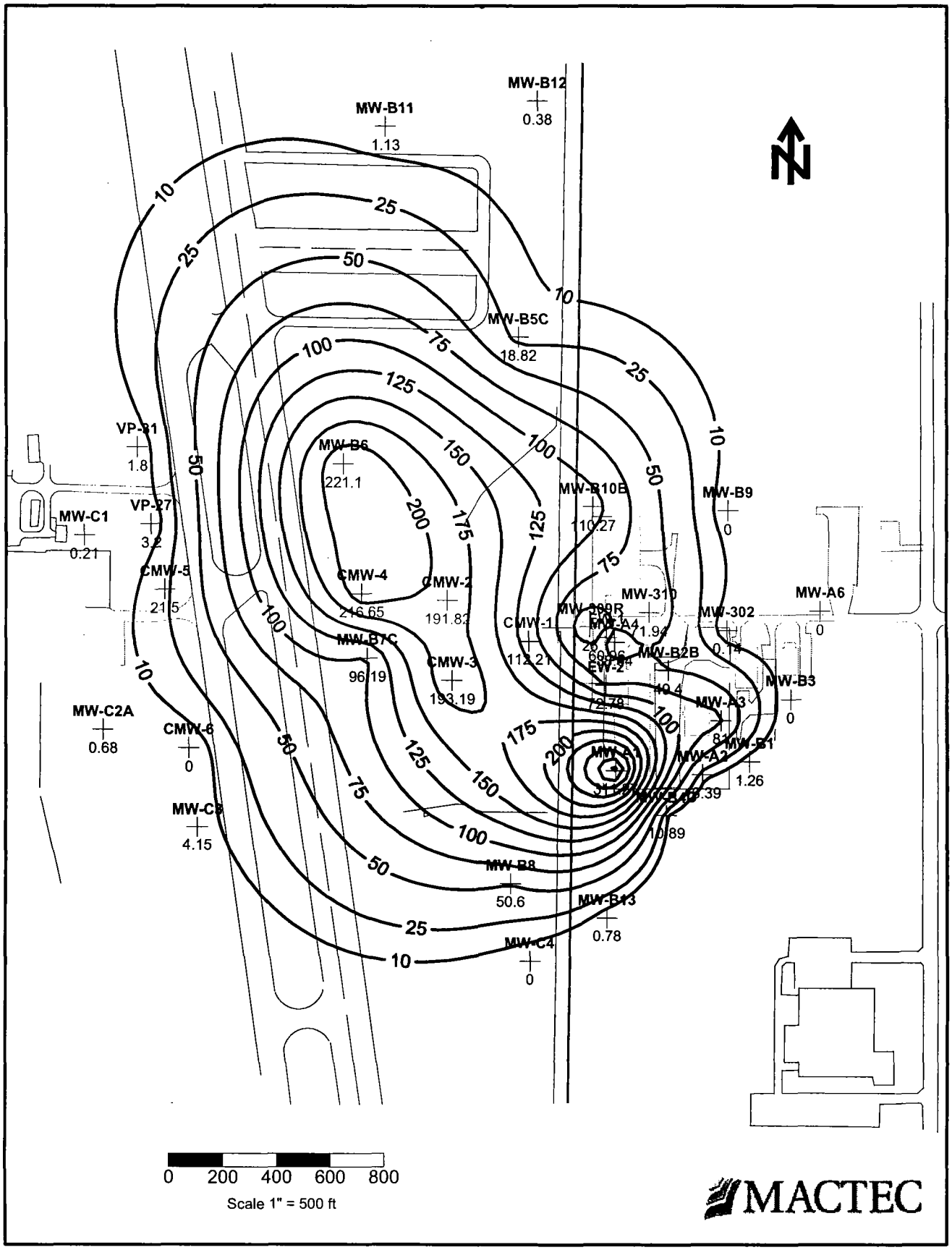
XI. Next Review

The five-year review is required due to the fact that hazardous substances, pollutants, or contaminates remain at the Site above levels that allow for unlimited use and unrestricted exposure. The next five-year review for the Site is required five years from the date of this review.

ATTACHMENT 1

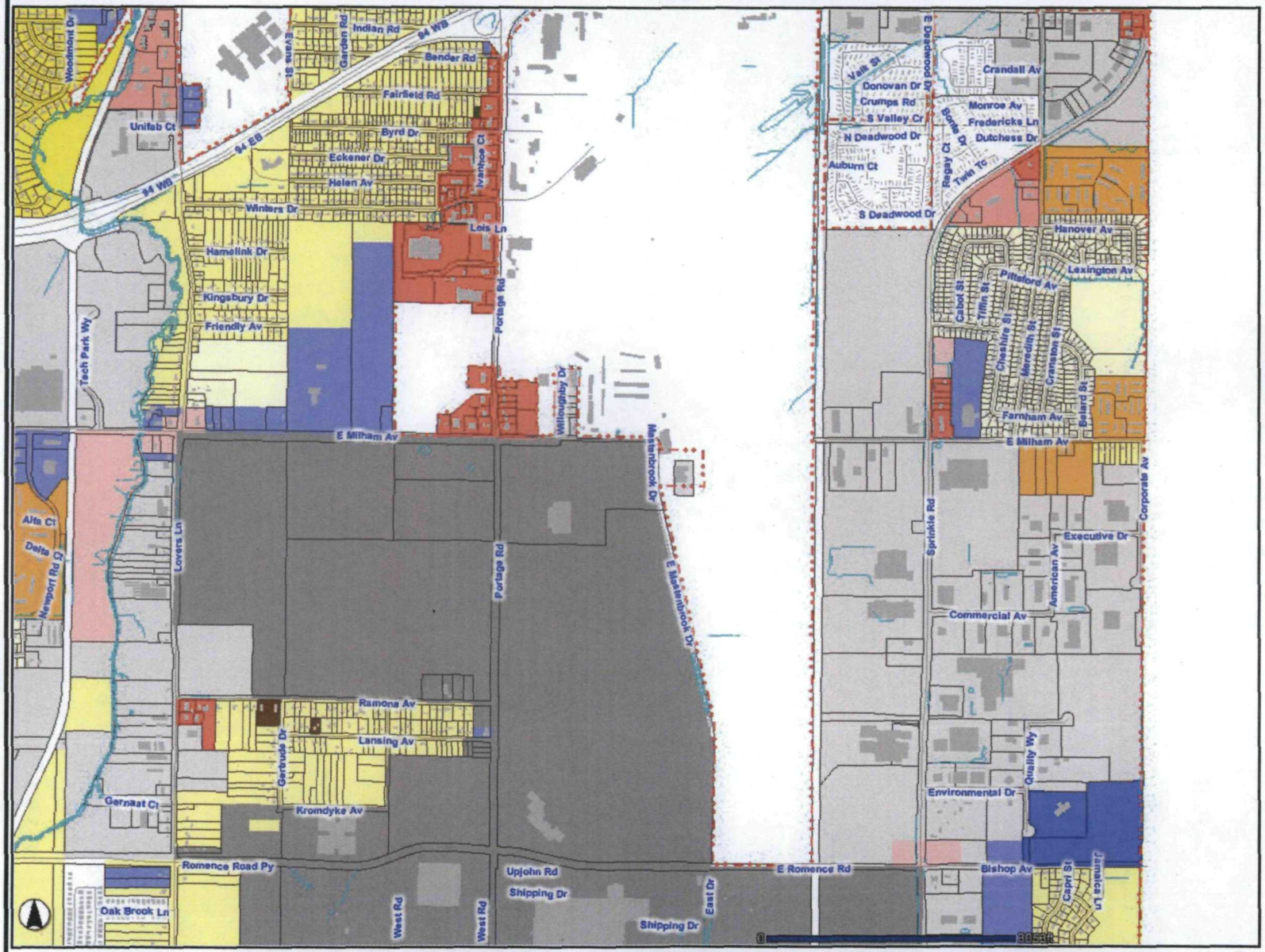
ATTACHMENT 2

Total VOCs (ug/L) - 12/2005 Plume Definition



Roto-Finish Superfund Site - Current Zoning

Printed December 2006

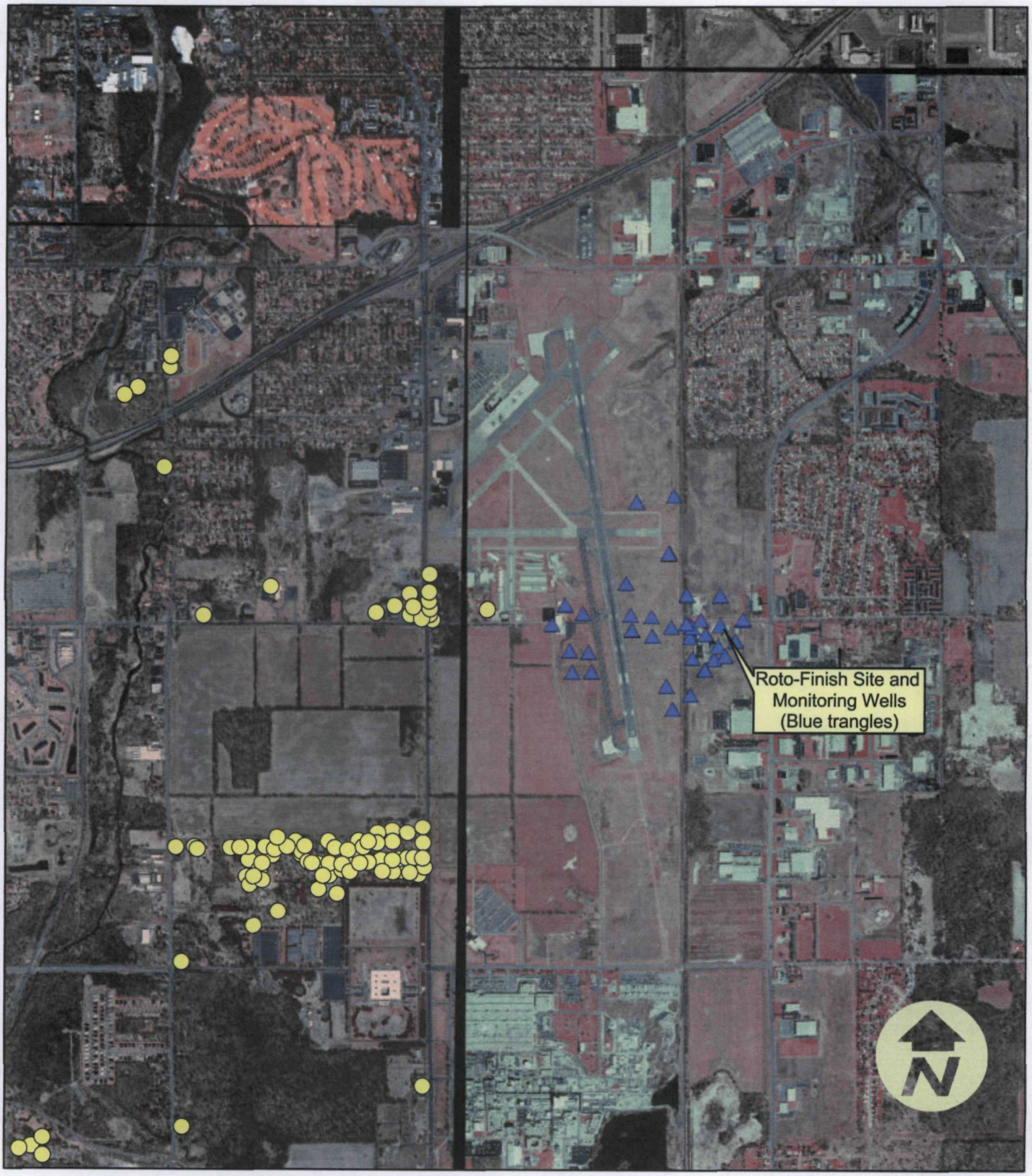


DISCLAIMER: This map is neither a legally recorded map nor a survey and is not intended to be used as one. This map is a compilation of records, information and data located in various city, county, state and federal offices and other sources regarding the area shown, and is to be used for reference purposes only. Please contact City of Portage Assessors office (329-4433) for current property assessment information.
SOURCES: City of Portage; Portage Public Schools; Plansight LLC;Spring 2005 for Parcel Data; Aerial imagery as noted in overlay; School boundaries are approximate and should be confirmed with the Portage Public

ATTACHMENT 3

ATTACHMENT 4

Residential & Commercial Wells from Michigan Well Data Base in Areas not Served by City Water



MACTEC

ATTACHMENT 5
Revised ROD Cleanup Criteria and Monitoring Parameters

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: May 31, 2005

SUBJECT: Roto-Finish 1997 ROD Cleanup Criteria (Table 6) Corrections/Clarification

FROM: Katherine Rodriguez
RPM, RRS #4

TO: File

In March 1997 U.S. EPA issued a Record of Decision (ROD) which outlined the remedy selection process and selected the cleanup actions for the Roto-Finish site (the site) located in Kalamazoo County, Portage, Michigan. The remedy selected was Monitored Natural Attenuation (MNA). Currently the site is in the Remedial Design Stage.

The current issue is the performance standards for groundwater cleanup in Table 6 of the ROD. The ROD states that the performance standards are the lower of either Maximum Contaminant Levels (MCLs) or Michigan Part 201 Residential Drinking Water Criteria. The source for the Federal MCLs was Code of Federal Regulations 40 Part 141; Drinking Water Regulations and Health Advisories" by U.S. EPA Office of Water, May 1995, where the Non-zero Maximum Contaminant Level Goals (MCLGs) apply when less than the MCL. The source for the Michigan criteria was MDEQ Environmental Response Division Operational Memoranda #8, Revision 4, and #14, Revision 2.

In the process of pre-design studies, MACTEC, the contractor for the Potentially Responsible Party, (Illinois Tool Works) presented in the Phase I Report of the Remedial Design Work Plan (April 24, 2002) inaccuracies in the performance standards for groundwater cleanup objectives documented in the ROD. MACTEC proposed corrections to the criteria using the most current documentation of the Michigan criteria, Operational Memoranda #18 Attachment A Groundwater: Residential and Industrial-Commercial Part 201 Generic Cleanup Criteria and Screening Levels.

The September 2002 Five-Year Review states on page 25, "The 1997 ROD incorrectly attributed an MCL to 1,1-Dichloroethane (DCA). Actually, MCL consideration for this compound is still under review. This compound is one of those slated for further water quality standard development, and in the field has been detected more frequently than any other VOC. Also the 1997 ROD inappropriately added together the separate MCLs for the cis/trans form of 1,2-DCE, rather than noting their individual MCLs. Despite these oversights, basic assumptions concerning exposure, toxicity and desired cleanup levels are justified. The agency must monitor developments related to any eventual MCL that may be established for 1,1-DCA. However, at this time, the original remedial approach is still likely to be compatible with MCL development which may occur for 1,1-DCA."

The performance standards for the site were memorialized at the time of the ROD. The agencies have decided to reduce any future confusion of the performance standards by correcting Table 6 of the ROD using the information available at the time of the ROD, see attached Revised Roto-Finish March 1997 ROD Cleanup Criteria (Table 6) (Incorporates corrections). In the future, if there are more significant/fundamental changes to the remedy, it is suggested to consider the Michigan criteria updates as was proposed by MACTEC in the Phase I Report and the MCL developments as was indicated in the Five-Year Review.

REVISED ROTO-FINISH MARCH 1997 ROD CLEANUP CRITERIA (TABLE 6) (Incorporates corrections)							
	3/97 ROD Stated Cleanup Criteria (ug/l)		MACTEC's Proposed Corrections to Criteria (RD Ph I Report) (ug/l)	Actual Agency Cleanup Criteria at Time of ROD (ug/l)		Corrected ROD Cleanup Criteria[1] (ug/l)	
Contaminant	Federal[2]	MDEQ[3]		Federal[2]	MDEQ[3]		Rationale
Volatiles							
Acetone	None available	730	No change	None available	730	**730**	No change
Benzene	5	5	No change	5	5	**5**	No change
Bromodichloromethane	100[4]	100	No change	100[4]	100	**100[4]**	No change
Carbon Disulfide	None available	800	No change	None available	800	**800**	No change
Chloroebenzene	100	100	No change	100	100	**100**	No change
Chloroethane	None available	220	430	None available	220	**220**	6/5/95 Part 201 Criteria; 430 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Chloroform	100[5]	100	No change	100[4]	100	**100[4]**	No change
Dichlorodifluoromethane	Compound not listed in 3/97 ROD		1,700	None available	1,700	**1,700**	6/5/95 Part 201 Criteria

REVISED ROTO-FINISH MARCH 1997 ROD CLEANUP CRITERIA (TABLE 6) (Incorporates corrections)							
	3/97 ROD Stated Cleanup Criteria (ug/l)		MACTEC's Proposed Corrections to Criteria (RD Ph I Report) (ug/l)	Actual Agency Cleanup Criteria at Time of ROD (ug/l)		Corrected ROD Cleanup Criteria[1] (ug/l)	
Contaminant	Federal[2]	MDEQ[3]		Federal[2]	MDEQ[3]		Rationale
1,1-Dichloroethane	5	5	880	None available	880	**880**	ROD incorrectly cited MCL as 5 ug/l when there was no MCL for this compound at the time of the ROD; ROD incorrectly cited Part 201 criteria as 5 ug/l when it was 880 at the time of the ROD (6/5/95 Part 201 Criteria)
1,1-Dichloroethene	7	7	No change	7	7	**7**	No change
1,2-Dichloroethane	5	5	No change	5	5	**5**	No change
1,2-Dichloroethene	170	170	cis-1,2-DCE 70 trans-1,2-DCE 100	cis-1,2-DCE 70; trans-1,2-DCE 100	cis-1,2-DCE 70; trans-1,2-DCE 100	**cis-1,2-DCE 70 trans-1,2-DCE 100**	6/5/95 Part 201 Criteria; ROD incorrectly cited **total 1,2-DCE** instead of citing the cleanup criteria for each isomer separately
Ethyl Benzene	700	700	74	700	74	**74**	ROD incorrectly cited Part 201 criteria as 700 ug/l when the aesthetic criteria was 74 ug/l at the time of the ROD (6/5/95 Part 201 Criteria)
4-methyl-2-pentanone	None available	370	1,800	None available	370	**370**	6/5/95 Part 201 Criteria; 1,800 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Methylene Chloride	5	5	No change	5	5	**5**	No change
Tetrachloroethene	5	5	No change	5	5	**5**	No change

REVISED ROTO-FINISH MARCH 1997 ROD CLEANUP CRITERIA (TABLE 6) (Incorporates corrections)							
	3/97 ROD Stated Cleanup Criteria (ug/l)		MACTEC's Proposed Corrections to Criteria (RD Ph I Report) (ug/l)	Actual Agency Cleanup Criteria at Time of ROD (ug/l)		Corrected ROD Cleanup Criteria[1] (ug/l)	
Contaminant	Federal[2]	MDEQ[3]		Federal[2]	MDEQ[3]		Rationale
Toluene	1,000	1,000	790	1,000	790	**790**	ROD incorrectly cited Part 201 criteria as 1,000 ug/l when the aesthetic criteria was 790 ug/l at the time of the ROD (6/5/95 Part 201 Criteria)
1,1,1-Trichloroethane	200	200	No change	200	200	**200**	No change
1,1,2-Trichloroethane	3[5]	5	5	3[5]	5	**3**	ROD criteria based on Non-Zero Maximum Contaminant Level Goal
Trichloroethene	5	5	No change	5	5	**5**	No change
Vinyl Chloride	2	2	No change	2	2	**2**	No change
Total Xylenes	10,000	10,000	280	10,000	280	**280**	ROD incorrectly cited Part 201 criteria as 10,000 ug/l when the aesthetic criteria was 280 ug/l at the time of the ROD (6/5/95 Part 201 Criteria)
Semivolatiles							
Benzo(a)anthracene	None available	1.2	2.1	None available	1.2	**1.2**	6/5/95 Part 201 Criteria; 2.1 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)

REVISED ROTO-FINISH MARCH 1997 ROD CLEANUP CRITERIA (TABLE 6) (Incorporates corrections)							
	3/97 ROD Stated Cleanup Criteria (ug/l)		MACTEC's Proposed Corrections to Criteria (RD Ph I Report) (ug/l)	Actual Agency Cleanup Criteria at Time of ROD (ug/l)		Corrected ROD Cleanup Criteria[1] (ug/l)	
Contaminant	Federal[2]	MDEQ[3]		Federal[2]	MDEQ[3]		Rationale
Benzo(b)fluoranthene	None available	1.2	2	None available	1.2	**1.2**	6/5/95 Part 201 Criteria; 2 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Benzo(k) fluoranthene	None available	12	5	None available	12	**12**	6/5/95 Part 201 Criteria; 5 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Benzo(g,h,i)perylene	None available	26	5	None available	26	**26**	6/5/95 Part 201 Criteria; 5 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Benzo(a)pyrene	2	0.2	5	0.2	0.2	**0.2**	6/5/95 Part 201 Criteria; 5 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD).
Bis(2-ethylhexyl)phthalate	6	6	No change	6	6	**6**	No change
Chrysene	None available	120	5	None available	120	**120**	6/5/95 Part 201 Criteria; 5 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Di-n-octyl phthalate	None available	130	No change	None available	130	**130**	No change
1,2-Dichlorobenzene	600	600	No change	600	600	**600**	No change

REVISED ROTO-FINISH MARCH 1997 ROD CLEANUP CRITERIA (TABLE 6) (Incorporates corrections)							
	3/97 ROD Stated Cleanup Criteria (ug/l)		MACTEC's Proposed Corrections to Criteria (RD Ph I Report) (ug/l)	Actual Agency Cleanup Criteria at Time of ROD (ug/l)		Corrected ROD Cleanup Criteria[1] (ug/l)	
Contaminant	Federal[2]	MDEQ[3]		Federal[2]	MDEQ[3]		Rationale
1,4-Dichlorobenzene	75	75	No change	75	75	**75**	No change
Fluoranthene	None available	880	210	None available	880	**880**	6/5/95 Part 201 Criteria; 210 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Indeno(1,2,3-cd)pyrene	None available	1.2	5	None available	1.2	**1.2 (2)***	6/5/95 Part 201 Criteria; 5 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
2-Methylnaphthalene	None available	ID	260	None available	ID	**None available**	260 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
4-Nitrophenol	None available	None available	No change	None available	None available	**None available**	
Pentachlorophenol	1	1	No change	1	1	**1**	No change
Phenanthrene	None available	26	52	None available	26	**26**	6/5/95 Part 201 Criteria; 52 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Phenol	None available	4,400	No change	None available	4,400	**4,400**	No change

REVISED ROTO-FINISH MARCH 1997 ROD CLEANUP CRITERIA (TABLE 6) (Incorporates corrections)							
	3/97 ROD Stated Cleanup Criteria (ug/l)		MACTEC's Proposed Corrections to Criteria (RD Ph I Report) (ug/l)	Actual Agency Cleanup Criteria at Time of ROD (ug/l)		Corrected ROD Cleanup Criteria[1] (ug/l)	
Contaminant	Federal[2]	MDEQ[3]		Federal[2]	MDEQ[3]		Rationale
Inorganics							
Aluminum	None available	ID	50	None available	50[6]	**50[6]**	6/5/95 Part 201 Aesthetic Criteria
Antimony	6	6[6]	No change	6	6[6]	**6[6]**	No change
Arsenic	50[7]	50[6]	No change	50[7]	50[6]	**50[6]**	No change
Barium	2,000	2,000[6]	No change	2,000	2,000[6]	**2,000[6]**	No change
Calcium	None available	None available	No change	None available	None available	**None available**	
Chromium	100	100[6]	No change	100	100[6]	**100[6]**	No change
Cobalt	None available	37	40	None available	37	**37**	6/5/95 Part 201 Criteria; 40 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Copper	1,300[5]	1,400[6]	1,000	1,300[5]	1,400[6]	**1,300**	6/5/95 Part 201 Criteria; 1,000 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Iron	None available	300[6]	No change	None available	300[6]	**300[6]**	No change

REVISED ROTO-FINISH MARCH 1997 ROD CLEANUP CRITERIA (TABLE 6) (Incorporates corrections)							
	3/97 ROD Stated Cleanup Criteria (ug/l)		MACTEC's Proposed Corrections to Criteria (RD Ph I Report) (ug/l)	Actual Agency Cleanup Criteria at Time of ROD (ug/l)		Corrected ROD Cleanup Criteria[1] (ug/l)	
Contaminant	Federal[2]	MDEQ[3]		Federal[2]	MDEQ[3]		Rationale
Lead	15[8]	4[6]	No change	15[8]	4[6]	**4[6]**	No change
Magnesium	None available	420,000	400,000	None available	420,000	**420,000**	6/5/95 Part 201 Criteria; 400,000 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Manganese	None available	860	50	None available	50[6]	**50[6]**	ROD incorrectly cited Part 201 criteria as 860 ug/l when the aesthetic criteria was 50 ug/l at the time of the ROD (6/5/95 Part 201 Criteria)
Mercury	2	2[6]	No change	2	2[6]	**2[6]**	No change
Nickel	100[9]	100[6]	No change	100[9]	100[6]	**100[6]**	No change
Potassium	None available	None available	No change	None available	None available	**None available**	
Sodium	None available	160,000	120,000	None available	160,000	**160,000**	6/5/95 Part 201 Criteria; 120,000 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Thallium	0.5[5]	2[6]	2	0.5[5]	2[6]	**0.5[5]**	ROD criteria based on Non-Zero Maximum Contaminant Level Goal

REVISED ROTO-FINISH MARCH 1997 ROD CLEANUP CRITERIA (TABLE 6) (Incorporates corrections)							
	3/97 ROD Stated Cleanup Criteria (ug/l)		MACTEC's Proposed Corrections to Criteria (RD Ph I Report) (ug/l)	Actual Agency Cleanup Criteria at Time of ROD (ug/l)		Corrected ROD Cleanup Criteria[1] (ug/l)	
Contaminant	Federal[2]	MDEQ[3]		Federal[2]	MDEQ[3]		Rationale
Vanadium	None available	64[6]	4.5	None available	64[6]	**64[6]**	6/5/95 Part 201 Criteria; 4.5 ug/l is based on 6/6/00 Part 201 criteria (post 3/97 ROD)
Zinc	None available	2,400[6]	No change	None available	2,400[6]	**2,400[6]**	No change
Cyanide	200	200	No change	200	200	**200**	No change

NOTE: Reference to "6/5/95 Part 201 Criteria" *refers to said generic residential drinking water criteria listed in Op Memo 8, Revision 4 dated June 5, 1995* as cited in the March 1997 ROD.

ID: Inadequate data to develop criterion.

*Criterion followed by () (ie., x (y) or 1.2 (2)) means the corrected ROD cleanup criteria is the first number (ie., 1.2) followed by the Target Method Detection Limit (TMDL) pursuant to RRD Op Memo 2, Attachment 1, 10/22/04 (i.e., 2). Cleanup criteria remains at the first number (x) as modified to meet the ROD criteria or the current TMDL at the time of cleanup demonstration, whichever is higher.

(1): In addition to achieving Maximum Contaminant Levels and Michigan drinking water criteria, the groundwater must be restored to an aggregate risk of 1E-04 or less for cancer risks and a hazard index less than 1.0 for noncancer risks at all points throughout the aquifer. Performance standards for groundwater contaminants attributable to background groundwater quality conditions will be established based on the results of site-specific background groundwater monitoring.

(2): Sources: Code of Federal Regulations (CFR) 40 Part 141; "Drinking Water Regulations and Health Advisories" by U.S. EPA Office of Water, May 1995. Non-zero Maximum Contaminant Level Goals (MCLGs) apply when less than the MCL.

(3): Source: MDEQ Environmental Response Division Operational Memoranda #8, Revision 4, and #14, Revision 2.

REVISED ROTO-FINISH MARCH 1997 ROD CLEANUP CRITERIA (TABLE 6) (Incorporates corrections)							
	3/97 ROD Stated Cleanup Criteria (ug/l)		MACTEC's Proposed Corrections to Criteria (RD Ph I Report) (ug/l)	Actual Agency Cleanup Criteria at Time of ROD (ug/l)		Corrected ROD Cleanup Criteria[1] (ug/l)	
Contaminant	Federal[2]	MDEQ[3]		Federal[2]	MDEQ[3]		Rationale
(4): 1994 proposed rule for disinfectants and disinfection by-products: total for all trihalomethanes combined cannot exceed 80 ug/l.							
(5): Non-Zero Maximum Contaminant Level Goal (MCLG).							
(6): Site-specific background, as defined in Michigan Act 451, Part 201 Rule 701(b) (, may be substituted if higher than the cleanup criteria.							
(7): Under review (at the time of the 3/97 ROD).							
(8): Action level (at the time of the 3/97 ROD).							
(9): Being remanded (at the time of the 3/97 ROD).							

ATTACHMENT 6
Institutional Controls

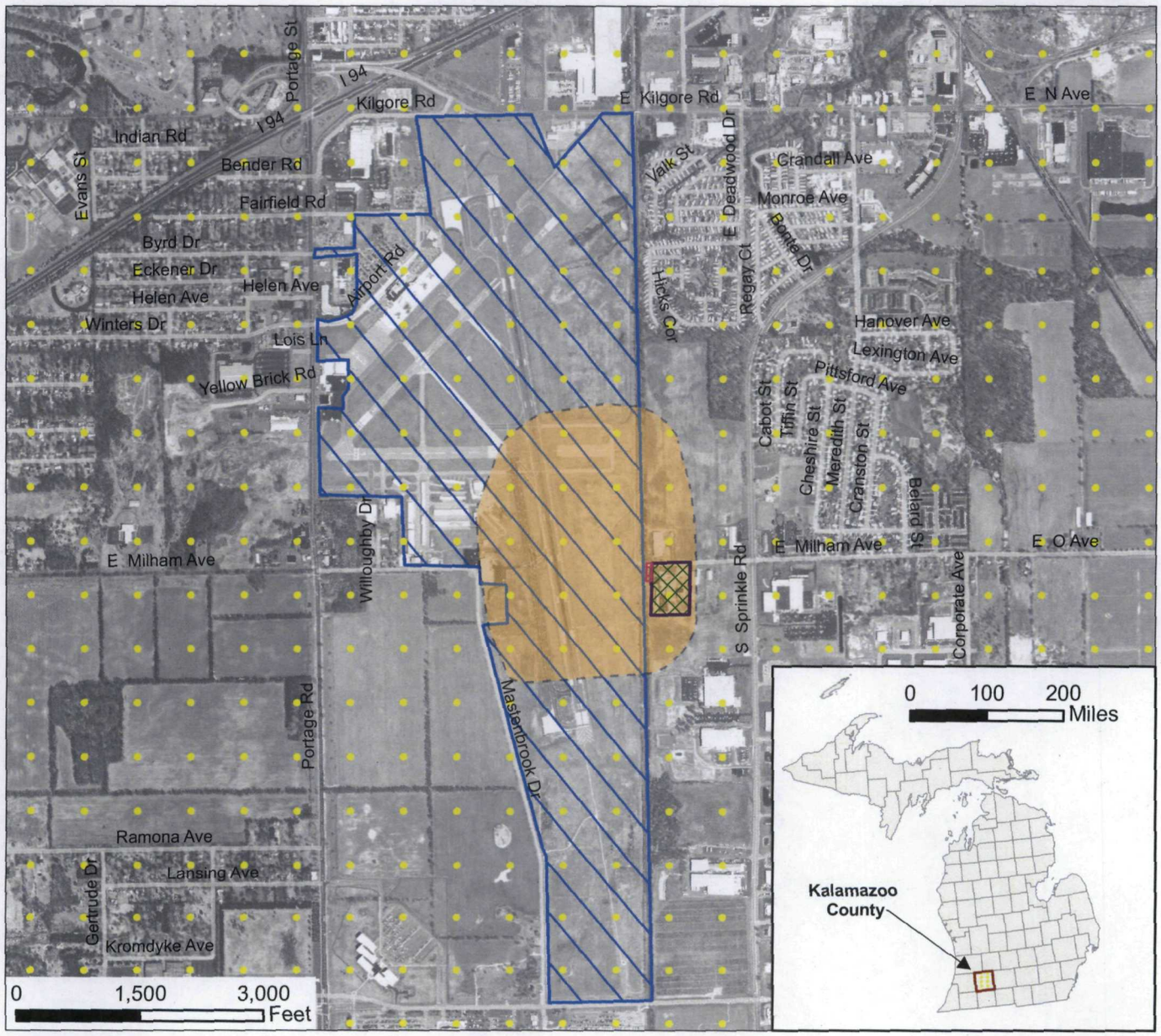
Institutional Control (IC) Review

Areas Depicting Required and Implemented Institutional Controls

Superfund
U.S. Environmental Protection Agency

Roto-Finish Co.
Kalamazoo County, MI

MID005340088



Legend

- Roto Finish Site Boundary
- Groundwater Plume Area - Required IC
- Kalamazoo Airport Policy (1997)***
- Declaration of Restrictive Covenant: Access Easement (1995) - Implemented IC*
- Declaration of Restrictive Covenant: Well Restrictions (1995) - Implemented IC*
- Kalamazoo County Sanitary Code (2003) - Implemented IC**

* See the Illinois Tool Works Inc., Declaration of Restrictive Covenant (1995), Kalamazoo County, MI for restriction details

** See the Kalamazoo County Sanitary Code (2003), Chapter 14, for restrictions regarding well construction and permits within Kalamazoo County, MI

*** Kalamazoo Airport Policy (1997) that restricts well construction on airport property

N

EPA Disclaimer: Please be advised that areas depicted in the map have been estimated. The map does not create any rights enforceable by any party. EPA may refine or change this data and map at any time.

GEOS Groundwater Evaluation and Optimization System

Created by Sarah Backhouse
U.S. EPA Region 5 on 3/29/07

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ST. COUNT RECEIV

LIBER 1822 PG 0079

DECLARATION OF RESTRICTIVE COVENANT

2791 3844

'95 DEC 13

This Declaration of Restrictive Covenant ("Declaration") is made and entered into as of this 13th day of November, 1995 by Illinois Tool Works Inc., a Delaware corporation ("Declarant").

CLERK-REGISTER

WITNESSETH:

WHEREAS, Declarant is the owner of certain property located in the City of Portage, County of Kalamazoo, Michigan, described on Exhibit A attached hereto, which property is referred to herein as the "Property."

37154

WHEREAS, as of the date hereof, the Property contains certain hazardous substances (as defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. Section 9601, as amended (CERCLA)).

WHEREAS, the Declarant desires to restrict the use of the Property as hereinafter set forth in the interest of the environment.

NOW, THEREFORE, in consideration of the premises, Declarant hereby imposes the following restrictive covenants on the Property:

1. With the exception of monitoring wells or wells required for remedial operations, no water well(s) shall be drilled, or otherwise constructed by whatever means, upon the Property.

2. No existing water wells currently located on the Property shall in anyway be used or utilized by any individual as a source of drinking water or for any other purpose, except as may be necessary to perform any required removal or remedial activity under CERCLA.

3. An easement of continued and undisturbed access over, under, on, to and across the Property is hereby reserved in favor of Declarant for such time as may be reasonably required by Declarant to satisfy in full its obligations under (a) that certain Administrative Order by Consent Re: Remedial Investigation and Feasibility Study, U.S. EPA Docket No. V-W-87-C-033, dated November 1, 1987, and (b) that certain Administrative Order Pursuant to Section 106 of CERCLA, U.S. EPA Docket No. V-W-95-C-281, dated January 30, 1995; or as Declarant may otherwise be required by any applicable governmental agency, with respect to those matters addressed by the aforementioned administrative orders. In connection therewith, the then owner of the Property shall take no actions to unreasonably interfere with Declarant's access to the Property or the activities that Declarant shall conduct thereon.

4. Declarant reserves the right to make such amendments or modifications to this Declaration as required by the United States Environmental Protection Agency acting within its authority under CERCLA.

RE-RECORDED
LIBER 1822 PG 0738

STATE OF MICHIGAN
COUNTY OF KALAMAZOO
RECEIVED FOR RECORD
'95 DEC 15 AM 10 12
RECORDED

CLERK-REGISTER

KA-36596

LEGAL DESCRIPTION

Commitment No.: KA-36596

LIBER 1822 PG 0740

The land referred to in this Commitment, situated in the County of Kalamazoo, City of Portage, State of Michigan, is described as follows:

Commencing at the North 1/4 post of Section 12, Town 3 South, Range 11 West; thence West 753.00 feet along the North line of said Section 12 to the place of beginning of this description; thence South 00 degrees 40 minutes West 633.77 feet parallel with the North and South 1/4 line of said Section 12; thence West 468.05 feet parallel with the North line of said Section 12 to a point 66 feet East of the East line of the Pennsylvania Railroad Company right-of-way; thence North 00 degrees 57 minutes 30 seconds East 633.82 feet parallel with said Pennsylvania Railroad Company right-of-way to the North line of said Section 12; thence East 464.82 feet along the North line of said Section 12 to the place of beginning of this description; and also granting an easement for highway purposes in common with others upon and across the following described parcel: Commencing at a point on the Southerly right-of-way line of Milham Road 1217.99 feet West of the North and South 1/4 line of Section 12, Town 3 South, Range 11 West; thence Westerly 66 feet more or less along said right-of-way line to the East line of the Pennsylvania Railroad Company right-of-way; thence South 00 degrees 57 minutes 30 seconds West 215.00 feet along the East line of said Pennsylvania Railroad Company right-of-way; thence East parallel with the Southerly right-of-way line of Milham Road 66 feet; thence North 00 degrees 57 minutes 30 seconds East parallel with said Pennsylvania Railroad Company right-of-way line 215.00 feet to the place of beginning.

Kalamazoo County Sanitary Code

Kalamazoo County
Health & Community Services

KALAMAZOO COUNTY SANITARY CODE

TABLE OF CONTENTS

ARTICLE III: WATER SUPPLY REGULATIONS

CHAPTER 13: PURPOSE

This Article of the Code seeks to assure that all private, Type II and Type III Non-Community Water Supply Systems provide a safe and adequate water supply to the systems' users.

CHAPTER 14: GENERAL PROVISIONS

SECTION 14.01: FACILITIES REQUIRED

Every building used for human habitation must have an approved water supply system. The Health Officer shall have the duty and responsibility of approving, upon application, a buildings' water supply system.

SECTION 14.02: WELL CONSTRUCTION

The construction of water wells and the installation of water well pumps shall comply with the requirements set forth in the Groundwater Quality Control Rules, Part 127 of Act 368 of the Public Acts of 1978, as amended, being MCL 333.12701-333.12771; Act 399 of the Public Acts of 1976, as amended, being MCL 325.101 et. seq; and/or Part 201 of Act 451 of the public Acts of 1994, as amended, being MCL 324.20101-324.20142.

SECTION 14.03: PERMIT FOR WATER SUPPLY SYSTEMS

From and after the effective date of this Code, no person shall construct any new water supply system within the County of Kalamazoo unless the owner of the water supply system, or his/her/its representative, obtains a water supply system construction permit from the Health Officer.

SECTION 14.04: PRIORITY OVER BUILDING PERMITS

No municipality, township or other agency shall issue a building permit or otherwise allow commencement of construction on any land which requires the installation of a water supply system unless the Health Officer has issued a water supply system construction permit for that land.

SECTION 14.05: APPLICATION, PERMIT AND FEES

The Health Officer shall prepare and provide, to all applicants, a standard water supply system construction permit application. Any person who wants to construct a water supply system must submit a signed and completed application, along with the fee contained in the Schedule of Fees, to the Health Officer.

SECTION 14.06: DENIAL OF PERMITS

After reviewing an application for a water supply system construction permit, the Health Officer may deny the application or issue a restricted construction permit if the Health Officer determines

that one or more of the following conditions exist:

a. The applicant provided incomplete, inaccurate or false information; or,
b. The proposed water supply system or water supply well will not comply with Part 127 of Act 368 of the Public Acts of 1978, as amended, or Act 399 of the Public Acts of 1976, as amended; or,

c. Where the proposed location of the proposed water supply system or water supply well is in an area where the Michigan Department of Environmental Quality has issued an advisory against the use of water supply wells in the area or if the location is within a service area defined by the Michigan Department of Environmental Quality pursuant to R299.5409 as amended unless special well construction techniques or screening of a well at a depth not affected by contamination would allow the well to be isolated from the contamination which resulted in the issuance of an advisory to the establishment of a service area by the Michigan Department of Environmental Quality; or,

d. Where a water supply system or water supply well is proposed to be served by groundwater which the Human Services Department has knowledge is contaminated or likely to be contaminated by hazardous substance in excess of the residential drinking water criteria unless special well construction techniques or screening of a well at a depth not affected by contamination would allow the well to be isolated from the contamination. Hazardous substance and residential drinking water criteria have the same meaning as when those terms are used in Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, Act 451 of the Public Acts of 1994, as amended, being MCL 324.20101 et seq. When the Human Services Department has made such a determination, the Human Services Department shall make available to the public, upon request, a map of the area affected by this determination.

SECTION 14.07: VOID PERMITS

The Health Officer may declare a previously issued water supply construction permit to be null and void for any of the following reasons:

a. False, inaccurate, or incomplete information was supplied by the permit applicant, permit holder, or their representative; or,

b. A change in the plans of the permit holder affects the water supply design, location or use; or,

c. Current facts, data, or conditions which affect the previously issued permit in a manner that now prevents compliance with this Code or may endanger public health, or degrade groundwater quality; or,

d. Isolation distances required by this Code cannot be satisfied.

SECTION 14.08: TERMINATION OF PERMITS; RENEWAL

A permit issued pursuant to the requirements of the preceding sections shall be valid for one year from the date of issuance. No construction shall continue after the permit expires. Upon written

request, the Health Officer may extend the permit, at no additional charge, for an additional six (6) months.

SECTION 14.09: TRANSFER OF PERMITS

If a property owner transfers title of the property to another person prior to the expiration of a water supply system or water well construction permit, the Health Officer may transfer the permit to the new owner of the property if the new owner submits a written request to the Health Officer for the transfer. The new owner must also agree, in writing, not to change the scope of the project without the Health Officer's approval. Both the original permit holder and the new owner of the land must sign the request to transfer the permit. If the Health Officer authorizes the transfer of a permit, the act of transferring the permit does not change the permit's expiration date.

SECTION 14.10: INSPECTION AND APPROVAL

The Health Officer shall inspect all new water supply system installations to determine if the construction complies with the provisions of this Code.

SECTION 14.11: NOTICE TO THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

The Human Services Department shall provide the Michigan Department of Environmental Quality with written notice of any modification to, or revocation of, the provisions of Article III of this Code. No modification or revocation shall take effect until thirty (30) days after the Michigan Department of Environmental Quality receives the notice of the modification or revocation.

CHAPTER 15: VARIATIONS AND APPEALS

SECTION 15.01: VARIATIONS

a. The Health Officer may grant a variation in the tests, standards, or general requirements contained in Article III of this Code if the Health Officer receives a written application for a variation and the Health Officer determines:

   i. The strict application of these rules/regulations will result in unnecessary or unreasonable hardship; and,

   ii. The Health Officer can place conditions upon the variation which will adequately protect the public's health, safety and welfare; and,

   iii. That the action/inaction of the applicant, or any of the applicant's predecessors in interest, did not cause the need for the variation (e.g. that condition necessitating the variation is not a self-created hardship).

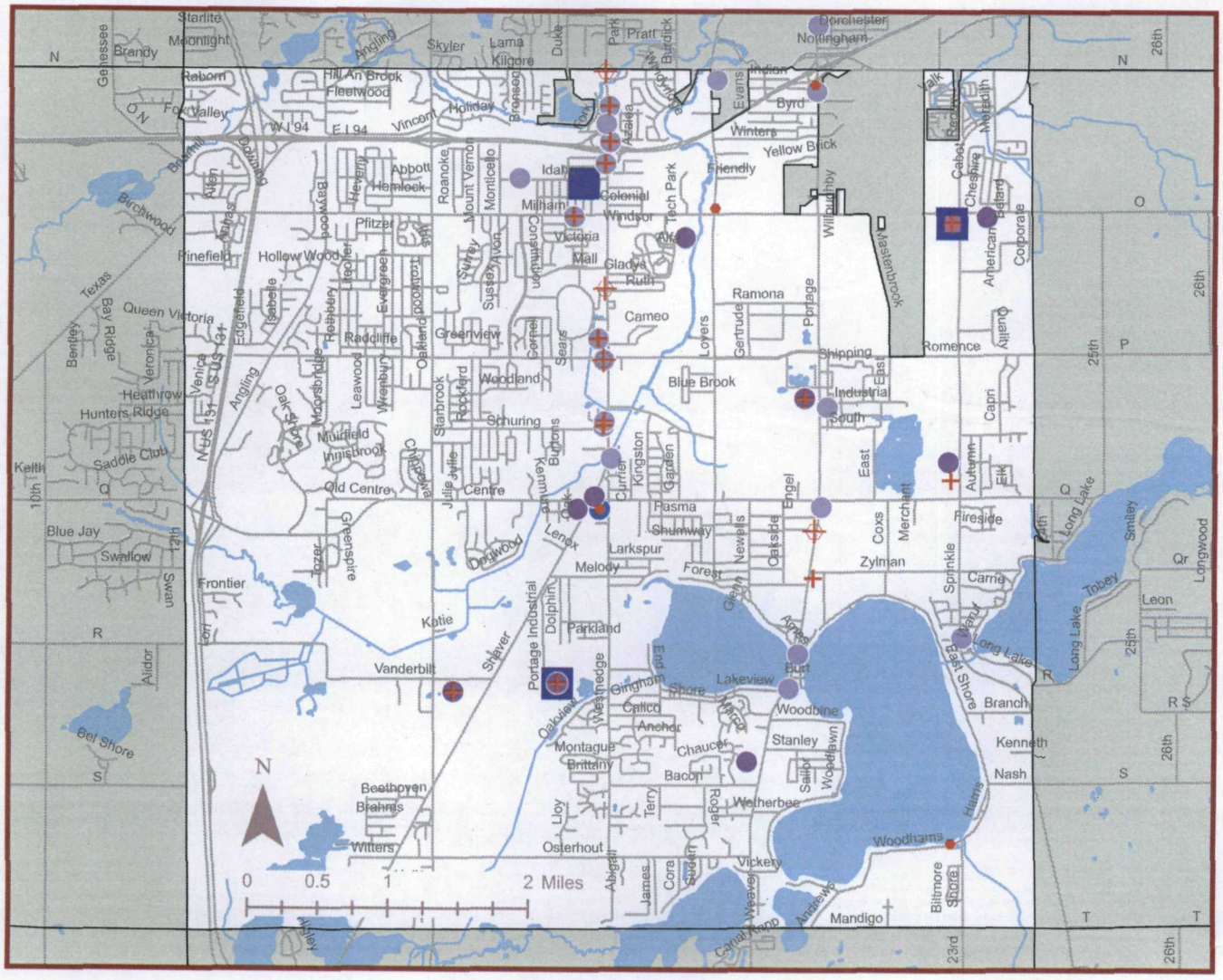
b. If the Health Officer issues a variance, the Health Officer shall record the variation in writing and include a description of the actual variation; the section of the Code from which the variation was granted; the reasons for granting the variation; and any time limit imposed upon the variation.

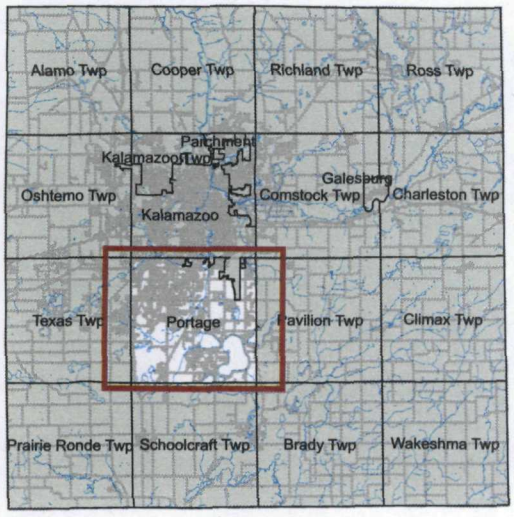
c. Under no circumstances may the Health Officer grant a variation which may jeopardize the public health, safety, or welfare, or which violates any local, state or federal law.

SECTION 15.02: APPEALS

A person may appeal the Health Officer's denial/suspension of a permit or the denial of an application for a variation under this Article of the Code pursuant to the provisions contained in Article VII of this Code. A person may also appeal from the decision contained in a Declaratory Ruling from the Health Officer. Appeals from Declaratory Rulings shall also be conducted in accordance with the provisions of Article VII of this Code.

ATTACHMENT 7





Groundwater Sites of Concern
CITY OF PORTAGE
Kalamazoo County, Michigan

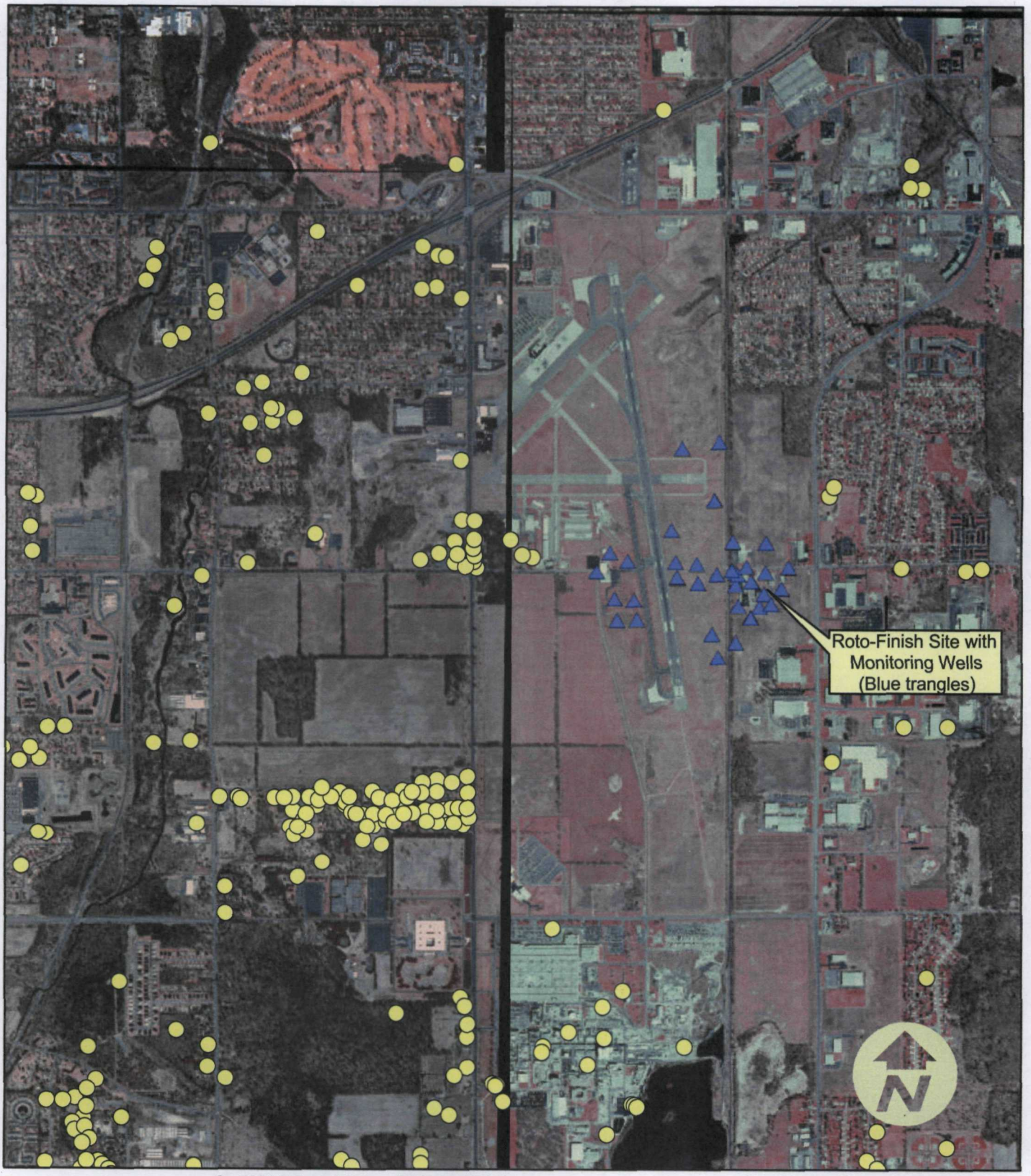
- Restricted Uses
- Migration Notice
- Migration Notice and Restriction
- 201
- LUST
- LUST/201
- SUPERFUND
- Monitored Area

Map updated February 2007
Call (269) 373-5336 for more information
Data Source:
Michigan Center for Geographic Information: www.michigan.gov/cgi
Michigan Department of Environmental Quality: www.michigan.gov/mdeq
Kalamazoo County Health & Community Services: www.kalcounty.com/eh

Kalamazoo County Health & Community Services

ATTACHMENT 8

Residential , Industrial, and Public Water Supply Wells from Michigan Well Data Base & Not on City Water.



MACTEC

ATTACHMENT 9

One discount per visit. [redacted] 2 beverages One discount per visit. ain Street Grille

complaints from rivals within a deadline of 25 working days.
—*Associated Press*

U. S. Environmental Protection Agency
Begins a second
Five-Year Review
for the
Roto-Finish Superfund Site
Kalamazoo, Michigan

The Superfund law requires a review at least every five years at sites where the cleanup has started and hazardous materials remain managed at the site. This is the second five-year review for the Roto-Finish site. The main cleanup plan for the site is institutional controls and monitored natural attenuation to restore contaminated ground water.

EPA initially installed a temporary system to pump contaminated water out of the ground and treat it. That system was shut down in 2001 and additional field work was conducted to design the cleanup plan and long-term monitoring plan, which should be completed next year. In order to determine the extent of ground-water contamination and how quickly it is diminishing, EPA took ground-water samples at 11 locations. Also, samples are taken quarterly from 13 new monitoring wells.

No formal meeting or public comment period or is required for this review, but EPA is interested in your concerns. You may examine site-related documents in the information repository at the Portage Public Library, 300 Library Lane, Portage, Mich. Information on the first five-year review is also at www.epa.gov/region5/superfund/fiveyear/fyr_index.html

Direct any questions or concerns to:

Katherine Rodriguez
Remedial Project Manager
U.S. Environmental Protection Agency
77 W Jackson Blvd., (SR-6J)
Chicago, IL 60604
(312) 353-5617 or
(800) 621-8431, 10 a.m. to 5:30 p.m., weekdays
rodriguez.katherine@epa.gov

1000839685-01

ATTACHMENT 10

DOCUMENTS REVIEWED

Roto-Finish Superfund Site Record of Decision, March 31, 1997

Roto-Finish Consent Decree, July 27, 1998

Technical Memorandum: Review of Natural Attenuation Processes in Groundwater And Recommendations for Future Work, Roto-Finish Site, Prepared for ITW, Inc. by ARCADIS Geraghty & Miller, Inc., November 1999.

Remedial Design Work Plan/Field Sampling Plan/Quality Assurance Plan - Developed approximately December 2000/February 2001/April 2001, respectively

Roto-Finish Superfund Site Five-Year Review Report, September 2002

Phase II Report and Appendices, Roto-Finish Site, Prepared for ITW, Inc. By Harding ESE, Inc., February 2003

Phase III Report, Roto-Finish Site, Prepared for ITW, Inc. By MACTEC Engineering and Consulting, Inc., Revised September 15, 2005

Phase IV Report, Roto-Finish Site, Prepared for ITW, Inc. By MACTEC Engineering and Consulting, Inc., Revised September 16, 2006

Phase V Report, Roto-Finish Site, Prepared for ITW, Inc. By MACTEC Engineering and Consulting, Inc., September 21, 2006

Draft Pre-Design Investigation Summary & Site Conceptual Model, Roto-Finish Site, Prepared for ITW, Inc. By MACTEC Engineering and Consulting, Inc., August 15, 2006

Remedial Action Plan: Draft Performance Groundwater Monitoring Plan, Roto-Finish Site, Prepared for ITW, Inc. By MACTEC Engineering and Consulting, Inc., August 15, 2006

ATTACHMENT 11

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The ARARs for the monitored natural attenution remedy include:

- Federal Aviation Administration Rules
- Occupational Safety and Health Act
- Resource Conservation and Recovery Act
- Safe Drinking Water Act
- Michigan Natural Resources Environmental Protection Act
    - Act 451 Part 111 Hazardous Waste Management
    - Act 451 Part 115 Solid Waste
    - Act 451 Part 201 Environmental Response

The ARARs for the use of the NTCRA extraction wells additionally include:

- Clean Air Act
- Clean Water Act
- Michigan Natural Resources Environmental Protection Act
    - Act 451 Part 121 Liquid Industrial Waste
    - Act 451 Part 31 Water Resources Protection
    - Act 451 Part 55 Air Resources Protection
    - Part 625 Mineral Wells
    - Part 91 (Soil Erosion and Control)

ATTACHMENT 12
Site Inspection

Site Inspection Checklist

I. SITE INFORMATION	
Site name: Roto Finish	**Date of inspection: 3.13.2007**
Location and Region: Portage, Michigan – Region 5	**EPA ID: MID005340088**
Agency, office, or company leading the five-year review: USEPA	**Weather/temperature: 65°, Sunny, windy**

Inspection Attendees:

Beth Mead-O'Brien, MDEQ

Chuck Graff, MDEQ

Chris Evert, MACTEC

Kate Rodriguez, EPA

Mike Hoffman, MACTEC

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☒ Institutional controls
- ☒ Groundwater pump and treatment (NTCRA and for use as a contingency remedy)
- ☐ Surface water collection and treatment
- ☐ Other_____
- ☒ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☐ O&M manual — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ As-built drawings — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Maintenance logs — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks: O & M Documents are currently being developed

2. **Site-Specific Health and Safety Plan** — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks: The PRP's consulting firm, MACTEC brings the Plan on site during fieldwork activities. It is maintained in the MACTEC Peoria Office.

3. **O&M and OSHA Training Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks: These are maintained at the MACTEC Peoria Office.

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Other permits_____ — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks: Purge water is discarded in the sanitary sewer to the City of Portage Wastewater Treatment Facility, no permit is required.

7. **Groundwater Monitoring Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks: These records are sent to the Agencies upon completion of monitoring activities. When the mobile lab is on site these records are faxed on a daily basis.

10. **Daily Access/Security Logs** — ☐ Readily available — ☐ Up to date — ☐ N/A

Remarks: These are maintained at the MACTEC Peoria Office.

V. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A
Remarks: Secure fencing is maintained surrounding the airport property. The former Roto-Finish property, now ESCO, Inc. maintains a fence around the property. It is unknown if the fence is secured after hours.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks All visitors to airport property are required to be accompanied by a representative who has taken the airport's security course. The airport entrances either require an access code or are securely padlocked.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	☐ Yes	☒ No	☐ N/A
Site conditions imply ICs not being fully enforced	☐ Yes	☒ No	☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) No current monitoring structure has been instituted. An IC monitoring plan will be implemented upon approval of the RD documents.
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date	☐ Yes	☐ No	☒ N/A
Reports are verified by the lead agency	☐ Yes	☐ No	☒ N/A
Specific requirements in deed or decision documents have been met	☐ Yes	☐ No	☐ N/A
Violations have been reported	☐ Yes	☒ No	☐ N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks: The ICs are currently being evaluated for adequacy.

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks: None

2. **Land use changes on site** ☒ N/A
Remarks: None

3. **Land use changes off site** ☐ N/A
Remarks: The airport is shifting the taxi way to the west about 100 feet by demolishing the existing one and constructing a new one. This may affect wells CMW-5, CMW-6 and MW-C3. Mike Hoffman indicated that he would be sending maps of the proposed work to be done. Actual construction will take place, at the earliest, this June.

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A
Remarks: The perimeter gravel road on the airport property required a 4x4 vehicle due to snowy conditions. The airport does not plow the gravel road.

D. Monitored Natural Attenuation

1.	**Monitoring Wells** (natural attenuation remedy) ☐ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☐ Good condition ☒ All required wells located ☒ Needs Maintenance ☐ N/A Remarks: See well checklist included with this inspection report. All "stick-up" wells were appropriately capped and locked except for those used to monitor water level data, WTMP 1-3. Most of the flush grade wells contained all bolts and were securely fastened, but there were four wells missing a bolt and at least three wells where the bolts were not properly secure. The consultant for the PRP will place locks on the wells that require them and ensure the flush grade wells security. While identity of each well can be determined by consultants or reviewing agency personnel equipped with well maps, wells will be remarked during the next monitoring event to take place in the next couple of weeks.

XI. OVERALL OBSERVATIONS

A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). The remedy is intended to eliminate or reduce the risks posed by potential future exposure to contaminated groundwater and to restore the contaminated aquifer to its potential future use as a supply of municipal, residential and industrial drinking water. Field work has been conducted to delineate the plume. The plume has been sufficiently delineated in order to move to RD phase. There is no evidence that residential wells are being impacted. Currently the remedy appears to be effective because there are no exposure routes, but additional actions need to take place to determine if the remedy will function in the long term as designed. Upon completion of the March sampling event, analysis will be conducted to determine the rate of degradation along the core of the plume which will indicate the time it will take to restore the aquifer to its potential future use.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. N/A
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. N/A

Groundwater Monitoring Locations at the Roto-Finish Site

Well ID	Field Confirmation	Is it labeled?	Is it locked (Secure)?	Photo Taken/notes
MW-A1	confirmed	YES	YES	
MW-A2	confirmed	YES	YES	
MW-A3	confirmed	YES	YES	
MW-A4	confirmed	Labeled in field	YES	
MW-A5	confirmed	YES	NO	Flush grade well, the lid appears to be welded open
MW-A6	confirmed	YES	YES	
MW-B1	confirmed	NO	YES	
MW-B2B	confirmed	YES	YES	
MW-B3A	confirmed	YES	YES	
MW-B3B	confirmed	YES	YES	
MW-B4A	confirmed	Labeled in field	YES	
MW-B4B	confirmed	Labeled in field	YES	
MW-B4C	confirmed	Labeled in field	YES	
MW-B5A	confirmed	YES, relabeled	YES	Flush grade well. Photo taken facing west.
MW-B5B	confirmed	YES, relabeled	YES	Flush grade well
MW-B5C	confirmed	YES, relabeled	YES	Flush grade well
MW-B6	confirmed	Labeled in field	YES	Flush grade well
MW-B7A	confirmed	NO	YES	Flush grade well
MW-B7B	confirmed	NO	YES	Flush grade well
MW-B7C	confirmed	NO	YES	Flush grade well
MW-B8	confirmed	Labeled in field	Missing 1 bolt	Flush grade well. Photo taken.
MW-B9	confirmed	NO	YES	
MW-B10A	confirmed	YES	YES	
MW-B10B	confirmed	YES	YES	Photo taken
MW-B11	confirmed	NO	NO	Flush grade well. Due to settling, the top of the well is touching the lid. It does not close securly. It will have to be cut down and well resurveyed.

Groundwater Monitoring Locations at the Roto-Finish Site

Well ID	Field Confirmation	Is it labeled?	Is it locked (Secure)?	Photo Taken/notes
MW-B12	confirmed	Labeled in field	YES	
MW-B13	confirmed	Labeled in field	YES	
MW-302	confirmed	?	YES	
MW-309R	confirmed	?	YES	
MW-310	confirmed	YES	YES	
CMW-1	confirmed	YES	Missing 1 bolt	Flush grade well
CMW-2	confirmed	YES	YES	Flush grade well
CMW-3	confirmed	YES	YES	Flush grade well
CMW-4	confirmed	YES, relabeled	YES	Flush grade well
CMW-5	confirmed	YES	Missing 1 bolt	Flush grade well
CMW-6	confirmed	YES	Missing 1 bolt	Flush grade well
MW-C1	confirmed	Labeled in field	YES	Flush grade well
MW-C2A	confirmed	Labeled in field	YES	Flush grade well
MW-C2B	confirmed	YES, relabeled	YES	Flush grade well
MW-C3	confirmed	YES	Missing 1 bolt	Flush grade well
MW-C4	confirmed	YES	YES	Flush grade well. Photo taken facing east. Both bolts 1/2 inch out; not screwed tight.
MW-C5	confirmed	YES, relabeled	YES	Flush grade well
MW-C6	confirmed	YES	NO	Flush grade well, bolt was loose. Photo taken.
WTMP-1	confirmed	NO	NO	
WTMP-2	confirmed	NO	NO	
WTMP-3	confirmed	NO	NO	Located near MW-B9
WTMP-4	confirmed	YES, relabeled	YES	Flush grade well, located near MW-B8
WTMP-5	confirmed	YES, relabeled	YES	Flush grade well, located north of MW-B6 near VP-16 location
WTMP-6	confirmed	YES, relabeled	NO	Flush grade well, bolt was loose. Located near MW-B12.
EW-1	confirmed	Labeled in field	NO	Photo taken
EW-2	confirmed	NO	YES	